# THE BUILDER

VOL. XCVI.—No. 3446. FEBRUARY 20, 1909.

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### *The Local Government Board Report.*

THE thirty-seventh annual Report of the Local Government Board, which has recently been issued, contains a mine of statistical information interesting to those concerned in Local Government, but in these columns we can only shortly refer to one or two subjects which may be of special interest to our readers.

Water supply, its purity and constancy, is a matter of considerable importance, and the two Reports of Mr. Perrin and Dr. Thorpe are full of interest. From the Report of the former we find that rainfall has an influence on the purity of river-derived waters, and that the year 1907 had a rainfall in excess of the average for the years 1883-1906 of 9·2 per cent., and this may have caused the increased proportion of organic matter referred to in the Report of Dr. Thorpe. He takes the mean proportion of organic matter in the filtered water delivered in London as represented by the figure 1,000, and furnishes tables showing a comparison with this mean. With reference to Thames water, the proportion was as follows:—In 1907, 913; 1906, 828; 1905, 785; 1904, 735; whilst in the year 1903, which was a year of excessive rainfall, it stood as high as 1,293. The comparative purity, or freedom from organic matter, of the different sources of supply can be seen from these tables. Thus, compared with the same standard, the figures for the River Lea were 1907, 622; 1906, 655; 1905, 535; 1904, 500; 1903, 936; whilst the water supplied from the deep wells from the Kent district is the freest from organic matter, and shows little variation in times of flood, the figures being in 1907 211, and 215 in 1903, the year of heavy rainfall.

#### *Water Supply.*

One of the chief means of overcoming this increase of organic matter in wet seasons is the provision of greater facilities for storing water, and it is satisfactory to note the advance that has been made in this direction. In the seven districts which supply filtered river water the total capacity of subsidence reservoirs has been increased from 2,593,100,000 gallons in 1901 to 8,913,600,000 gallons in 1907; but Dr. Thorpe observes that it is highly desirable that greater provision should still be made, for with the approximate population of 6,270,000 supplied this only represents forty-four days' supply.

From Mr. Perrin's Report can be gathered the magnitude of the consumption of water, for he shows that the average daily supply throughout the year for the districts supplied by the Metropolitan Water Board amounts to 218,659,244 gallons, or 31·61 gallons per head for a population averaging 6,918,180.

Connected with this subject is the question of constant supply, and Mr. Perrin deals with this at some length, and he shows that during the year 28,304 houses have been furnished with a constant supply, bringing the number up to 1,042,032, or about 97·7 per cent. of the whole number of houses supplied. Whilst dwelling on the advantages of the system, he points out that owing to the likelihood of interruption in frosty weather, due either to inferior fittings or even, in some cases, to insufficiently-covered mains, it is desirable that houses should be fitted with cisterns with storage capacity sufficient for one day's supply, and he observes that although in the Regulations issued under the Metropolis Water Act, 1871, the existence or provision of cisterns is recognised as a feature of the service, they are not prescribed. The surrender of control in times of heat, drought, or frost, he points out, is the weak point in the system, as it is at present worked, and leads to waste or misuse.

#### *Maintenance of Roads.*

Another subject of general interest dealt with in this Report is the maintenance of roads, and as public attention has been much drawn to this question in connexion with motor traffic a few particulars may be given. The mileage of main roads was 27,601, involving an expenditure, otherwise than out of loans, of 2,535,399*l*. The mileage of roads other than main roads was 95,017, and the expenditure 2,006,923*l*. and 23,645*l*. out of loans. From a table given in the Appendix it would appear that the average amount per mile expended otherwise than out of loans by all classes of authorities has considerably increased. Thus, main roads repaired by County Councils averaged 59*l*. per mile in 1899-1900, but 73*l*. in 1905-6. Main roads repaired on behalf of County Councils by Councils of Boroughs other than County Boroughs and Metropolitan Boroughs in the same period have risen from 185*l*. to 211*l*. per mile, and in rural districts from 51*l*. to 62*l*. Roads not being main roads show also a considerably increased expenditure, and it is in the County Boroughs alone that an increase is not shown. The divergence between

the cost of the roads as maintained by the different authorities is not referred to in this Report, but to an uninitiated person might suggest that economy as well as efficiency could be attained by the establishment of one road authority. Despite the increased expenditure some deterioration is noticeable in some districts in the character of the main roads. In Kent, for instance, although some main roads have certainly been improved others no less important show marked deterioration.

*Housing.*

As regards Housing of the Working Classes, from tables contained in the Report it appears that outside London representations were made in respect of 4,925 houses alleged to be unfit for habitation, and that 2,745 of these houses were made fit without closing orders being obtained; closing orders were made in respect of 734 houses, and 223 were ordered by the local authorities to be demolished.

*Advertisements.*

Under the heading, "Legislation of 1907" we find no mention of the Advertisement Regulation Act, 1907, yet considerable difficulty has been experienced by the local authorities in framing by-laws under this Act which shall accomplish their object and yet be *intra vires*. As by-laws under this Act must exempt existing hoardings for a period of not less than five years, the sooner the local authorities move in the matter the better.

*Financial.*

When so much statistical matter of interest is furnished as in this Report it is impossible in the space of a short article to do more than touch on one or two points, and we must reluctantly take leave of the volume with a quotation from one of the tables which shows the relative proportions which the balances outstanding of loans raised by the local authorities in England and Wales bear to the National Debt as compared with the year 1879-80. In 1879-80 the National Debt stood at 770,604,774*l.*, the debt of the local authorities at 136,934,070*l.* In 1905-6 the respective figures were 788,990,187*l.* and 482,983,187*l.* Thus, whereas in that period the National Debt has increased by 18,385,413*l.*, the local indebtedness in the same period has increased by 346,049,859*l.*, and stands at 61·22 per cent. of the National Debt, or an increase of 43·45 per cent.

## SOME OLD CASTLES IN GERMANY.

SOME eight years ago a Society was founded in Germany for the Preservation of Castles, these landmarks in the historical, military, and artistic development of a country. In order to record and publish abroad the good work done by the Society and thereby enlist a widespread sympathy, the Society started a publication entitled *Der Burgwart*,* which keeps the public informed on all matters connected with the history and construction of these monuments. The magazine, which appears every two months, is plentifully illustrated with attractive views, likely to awaken interest, where a mere word picture would leave the reader cold. The bound volume of numbers for the year 1907-1908 has been sent to us by Herr Bodo Ebhardt, one of the most energetic members of the Society, and the principal restoring architect under the Emperor's appointment for German castles. The volume is peculiarly rich in interesting articles and charming illustrations, some of these latter serving to show that modern alterations are not necessarily an eyesore, as is commonly maintained. As an example of this we reproduce the view of Castle Landonvillers (Fig. 1), recently modernised and added to by Herr Bodo Ebhardt. When the castle was originally built Lorraine was French, and to the French Renaissance long, low building has since been added the late Renaissance wing and the more recent massive keep and graceful staircase tower, both German in character. The admixture of styles was not the fault of the architect. His client expressly desired that in the midst of a French-speaking country his castle should breathe a German spirit. It was also his desire that the tower should rise to such a lofty height and thus dominate the entire neighbourhood. We reproduce (Fig. 2) a detail of the upper portion of the tower, showing how happily the eye is led from pediment to dome and thence to the spiral flèche.

* Der Burgwart. Zeitschrift für Burgenkunde und mittelälterliche Baukunst. IXth year. 1907-8. Franz Ebhardt & Co. Berlin. 1908.

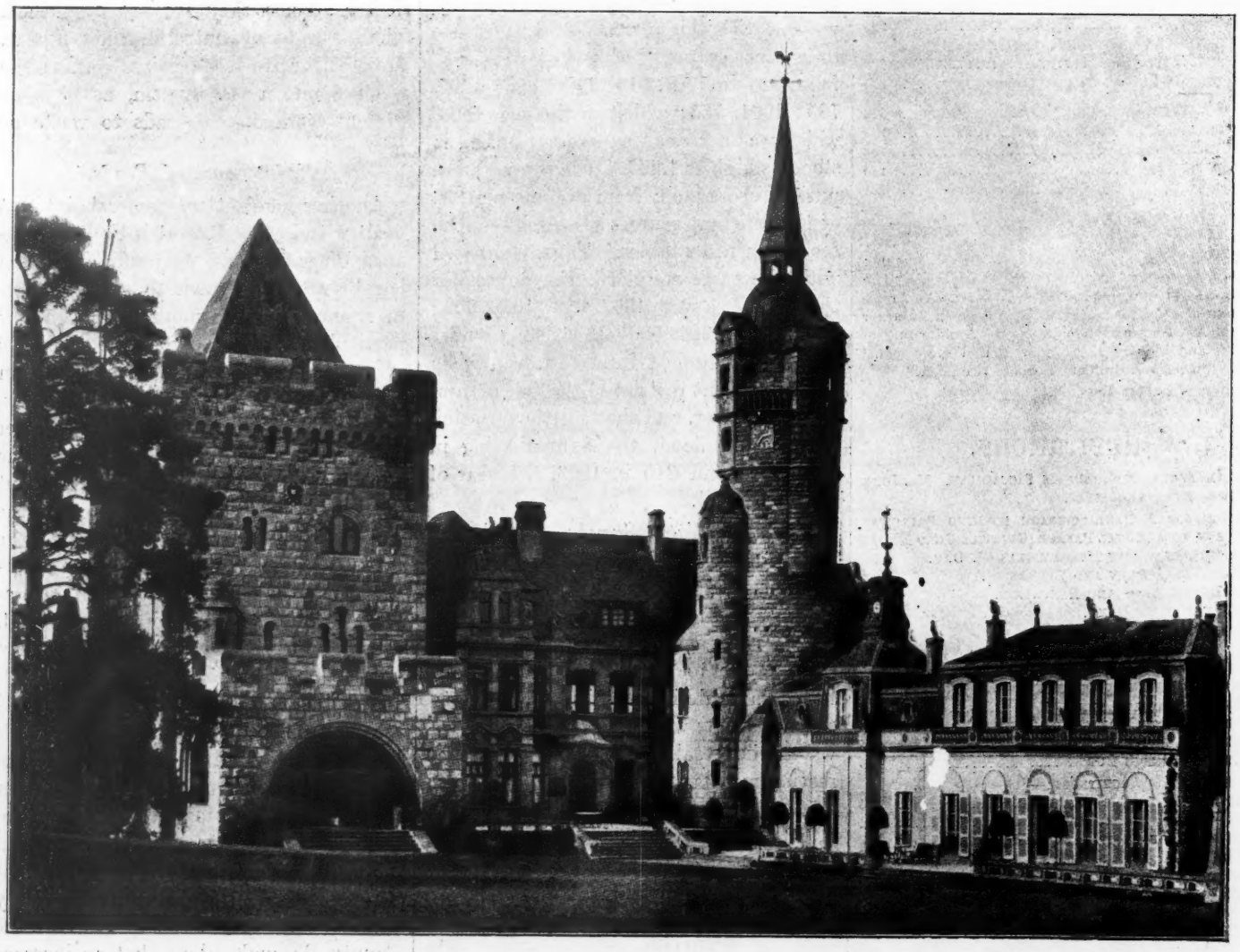

*Fig.* 1. *Schloss Landonvillers.*

Another valuable article from Herr Ebhardt's pen deals with "Fortresses in Silesia," and is in the form of a lecture on city planning of the Middle Ages and of the late Renaissance. The illustrations are all taken from an unpublished volume of plans collected by Säbisch in the XVIIth century, and are peculiarly interesting in that they show not only the schemes for fortifying the towns, but the lines of mediæval walls and streets, both before and after the alterations. The plan of Liegnitz, dated 1642, furnishes an interesting example of the mediæval stronghold composed of straight walls and strengthening angle towers, later susperseded by the XVIth century earthworks and semicircular bastions, which in their turn yielded to the angular bastions of the XVIIth century.

Many of the illustrations in the magazine have hardly any letterpress attached to them, and are inserted for their artistic value alone; perhaps with the unspoken hope that someone with leisure and opportunity may hunt up historical and archæological details, or that some person in authority may take steps to arrest further decay. The Ehrenburg on the Moselle is so illustrated—a magnificent ruin in a magnificent neighbourhood, which we hope will be allowed to remain without further handling than is necessary to maintain it in its present condition.

What the castle of Marienburg (Fig. 3) was like before its restoration there is nothing in the book to show; the illustration is from a drawing by Herr Hugo Ulbrich, made after the restoration. It is a most remarkable group of buildings, with its two masses forming a kind of stepped-down composition, and the older round towers with their conical roofs guarding the entrance from the river; one could wish that an illustration of this on a larger scale were available.

*Fig. 2. Detail of Tower, Schloss Landonvillers.*

One other illustration attracts attention through its picturesque simplicity. Schloss Burgk (Fig. 4), called "The Pearl of the Saal Valley," is perhaps the most beautiful of the many beautiful castles for which this valley is famed in picture and song. It stands in the less-known upper stretch of the valley, where the river winds between precipitous banks of dark fir and magnificent beech. It dates back to the XVth century, and, seen close, the simplicity of its architecture leaves but little impression. At a distance, however, this very simplicity makes for effect. This, together with the quaint disposition of its separate buildings and its charming situation, crowning a steep wooded peak girt on three sides by water, make up a picture of peculiar fascination.

There can be no doubt that the Society through its organ is attracting attention to its object in the farthest corners of the German Empire and accomplishing good work. Herr Bodo Ebhardt's contributions alone cover an immense field, what with descriptions of the restorations he actually carries out, the reports on works which should be put in hand, and his condemnation of "restoration" which should be checked. In this latter connexion he does not escape criticism himself, for he publishes a parody on an ancient ballad in which he is accused of riding forth at midnight armed with dividers and drawing-board, and before the first streaks of dawn have appeared, leaving the moonlit ruin replaced by "blocks of restoration."

## NOTES.

The Session of 1909.

AS REGARDS the relations of employers and workmen, the new session of Parliament is not likely to be an important one, and the interest of the day in this respect is connected with the legislation of past sessions. It is probable, however, that some discussion will take place on the recent judicial decisions in regard to the use of Trade Union funds for Parliamentary purposes. But Parliamentary Labour representation is probably hardly, at the present moment, in so much favour with workmen as it was. If the record of the present Parliament is surveyed it cannot be said that the influence of the Labour Members, either on legislation or administration, has been anything like as remarkable as outside speeches promised, and, in fact, the legislation which has benefited the working-classes has not been greatly affected by labour representation. The Town Planning Bill, which will probably become law, will of course benefit the working-classes in many ways, since healthy towns are essential for happiness, depending as this does not a little on the state of the home. The establishment of labour exchanges which is promised is a measure which may or may not be useful, because the specialising of artisans' work renders it almost impossible to move from one kind of skilled labour to another.

United Buildings.

THE case of Dicksee *v.* Layman, the judgment in which is reported under our Law Reports heading on another page, gives a magistrate's ruling on

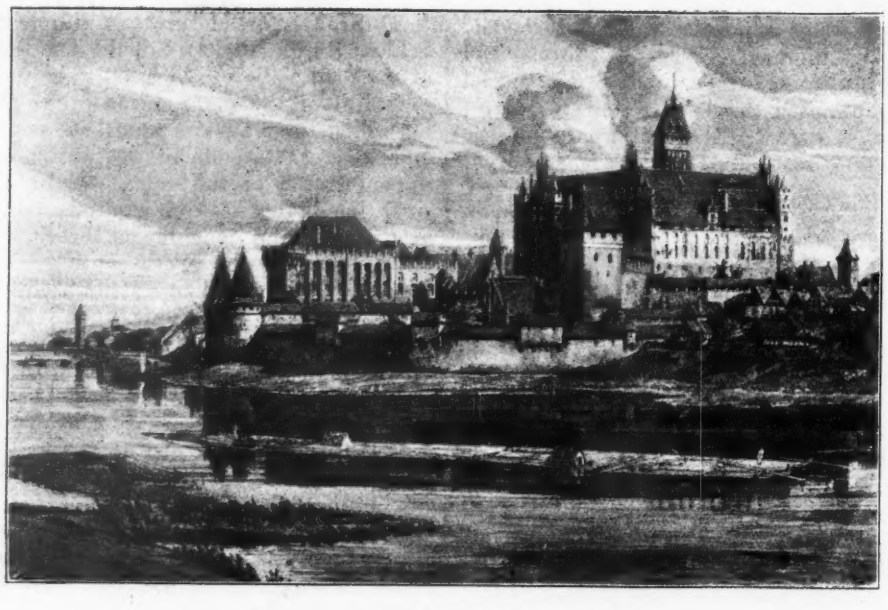

*Fig.* 3. *The Marienburg* (*see page* 205).

an important point in connexion with the question whether buildings erected as separate buildings become, for the purpose of District Surveyor's charges, one, when connected internally by door openings made in the party walls. We refer our reader to the report for the details of the case, in which the magistrate ruled that the buildings did not on that account become one building under the terms of the London Building Act. What we wish especially to notice, however, is that the magistrate more than once in his judgment referred to the fact that the Building Act gives no definition of the word "building," and gives no assistance in the interpretation of that word standing alone. That is what we pointed out on the first promulgation of the Act of 1894, as a most extraordinary omission in an Act dealing with the law as to buildings.

New York Traffic.

ACCORDING to the Report for 1908 of the Public Service Commission, the number of persons carried by the surface, elevated, and subway companies in New York is over 1300 millions annually, or 66 per cent. more than the total number of passengers conveyed on all the steam railways of the country. Up to the end of last year the city had expended 10 millions sterling on the construction of subways, and it is estimated that 20 millions further will be required for other lines, including connexions with the Williamsburg and Manhattan bridges. Three improvements in the operation of existing subways are now being adopted. One of these is the construction of cars with separate pairs of doors for ingress and egress respectively, the arrangement being similar to that on the Metropolitan and District lines in London. Another is the new signal system, proposed by Mr. Bion Arnold, permitting express trains to be run with shorter headway; and the third is an alteration at Bowling-green station which will permit all express trains to be run through to Brooklyn. Taken in conjunction with the work of the Bridges Department, the efforts made by the various traction companies have done much to facilitate communications in New York and to provide more adequately for the daily inflow and outflow of business people from and to the outlying districts.

Electric Lamps.

ON Monday last Mr. Leon Gaster delivered the first of a series of four Cantor lectures on "Modern Methods of Artificial Illumination" before the Royal Society of Arts. A large number of electric lamps were exhibited in the lecture-room, and various forms of incandescent lamps, arc lamps, and mercury vapour lamps were shown in action. In a lecture of little more than an hour's duration Mr. Gaster discussed the history of electric lamps from the time of their introduction to the present date, with the inevitable result that the subject was treated very superficially. The lecturer regards the ultra-violet rays emitted from indoor electric lamps as injurious to health, and advocates the use of bulbs constructed of a form of glass which will not permit the passage of these rays. Although such glass will also cut off a small proportion of useful light, he thinks that ample compensation for this loss is obtained in the improved quality of the light utilised; but he did not adduce any evidence to prove that ordinary electric light is injurious to health or eyesight. Mr. Gaster pointed out that it is not sufficient, when comparing electric lamps, to know the price, the candle-power, and the consumption of current. It is necessary to take into consideration the life of the lamp, for with different descriptions of lamps the period of useful life differs largely. The consumer should be told, said Mr. Gaster, what the life, the candle-power, and the current consumption will be. The life period should be marked on every lamp, and the manufacturer should be held responsible if any lamp fails to remain efficient for the stated period. It will be seen that Mr. Gaster is inclined to burden lamp manufacturers with responsibilities which would probably be found very troublesome.

"Open Access" Libraries.

WE have received a good deal of printed evidence recently as to the bad results of the system of "open access" to books in public libraries—*i.e.*, libraries

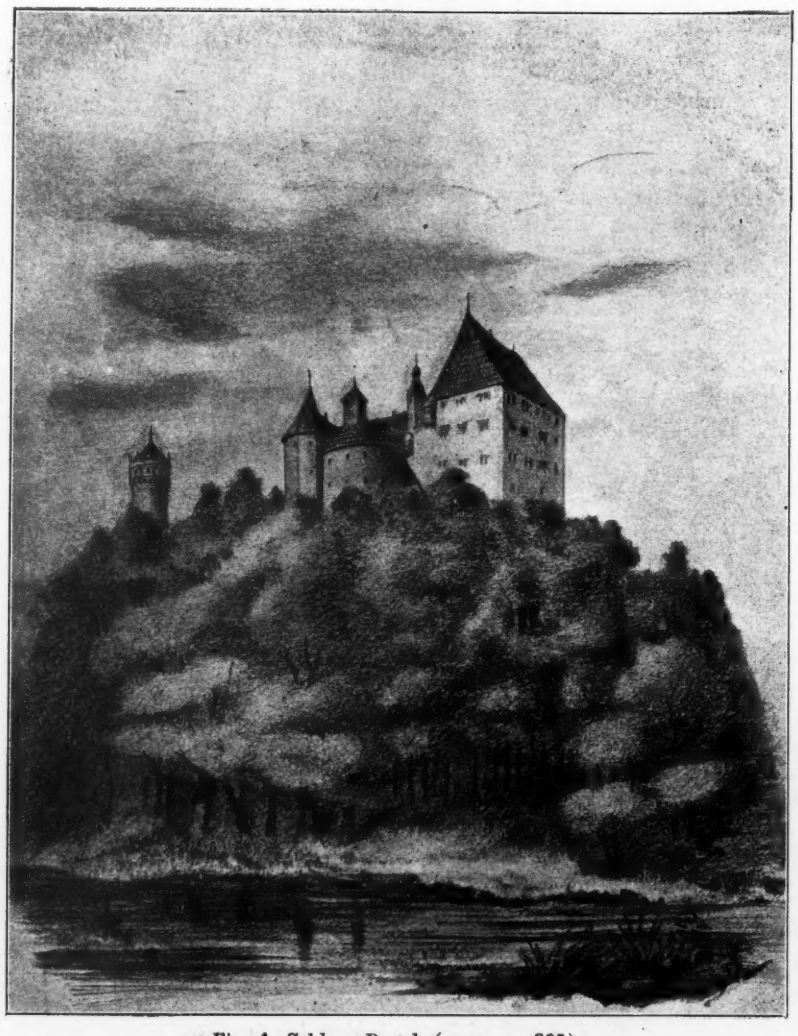

*Fig.* 4, *Schloss Burgk* (*see page* 205).

in which the reader or borrower can take out books from the shelves himself instead of applying for them through an official. The subject has been much debated; the open access system being supported by some library authorities on what may be called philanthropic grounds—rendering the choice and procuring of books easier to the reader. Unfortunately statistics seem to show that the system is almost invariably abused by dishonest people. The Report of the Malden (U.S.A.) Public Library Trustees states that losses from theft have largely increased in open access libraries. At the Bishopsgate Institute Library open access has been discontinued after the mutilation or loss of over 1,000 books in six years. The question is of course more or less directly concerned with the subject of library planning, which would differ very much for an open access or a closed library. Our conclusion is that the open access system cannot succeed for libraries open to all readers. Even at the London Library, where readers are only admitted on election, there is a standing complaint, not of course of theft, but of the taking away of books without having them entered first, which completely confuses the whole working of a library—not in this case through dishonesty, but through want of thought and of business-like procedure.

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Stratford House, Stratford-place, W.

SOME additions will be made under Messrs. W. H. Romaine-Walker & Besant's superintendence to this mansion, which Lord Derby has acquired for his town residence, in lieu of No. 33, St. James's-square. Stratford House, which stands along the north end of Stratford-place, was built by Robert Adam, upon land leased by the Corporation of London to Edward Stratford, whose son John was created Earl of Aldborough on July 9, 1777. There is a drawing in the Crace Collection which is lettered to the effect that Stratford House was built for Lord Aldborough. In the same collection is a drawn ground-plan, dated in 1779, whereon the house at the south-west corner of Stratford-place and Oxford-street is marked as being Lord Aldborough's. The building of Stratford-place was begun, it seems, in or about 1772 (a date upon the iron palisading at the back of No. 3) upon and near the sites of the "Receipt Conduit" and of the "Lord Mayor's Banquetting House," which remained until 1737 on the Corporation's Conduit Mead estate.

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The Hellenic Society.

AT the meeting of the Hellenic Society on Tuesday Mr. W. C. F. Anderson gave some description, and showed a number of photographs, of the region at and surrounding the site of Amphipolis; having in view the hope that, under the change in Turkish Government, it would now be possible to survey and excavate many important sites hitherto untouched; and Amphipolis and its neighbourhood promise a good deal. Reliefs, inscriptions, and terra-cottas have already been found there in considerable quantities, without any systematic exploration having been made. The land is mostly unoccupied, so that there is no compensation to be paid for disturbing house property. Mr. Ure previously gave a short lecture on the results of recent excavations in the ancient Greek cemetery at Rhitsona in Bœotia, with illustrations of a good many examples of pottery, some of it of a rather unusual type.

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Architectural Paintings.

THERE are two exhibitions on view at present of pictures dealing specially with architectural subjects. The most important of these is the collection of Interiors of Venetian Palaces and Churches by M. Pierre Bracquemond, at Mr. Maclean's gallery in the Haymarket. M. Bracquemond is the son of the celebrated engraver and etcher, and therefore inherits artistic talent; why he is stated in the catalogue to be an "Impressionist" we cannot imagine, as in fact his paintings of architectural interiors are exceedingly precise, clear, and highly finished. In fact, the deficiency in his interiors of St. Mark's and other churches is a want of mystery; it seems like St. Mark's reduced to plain prose; but his large interior of St. Mark is a fine and well-drawn architectural picture, the brightness of which is explained by the note "Juillet-midi." All the architecture is well drawn, and the small interior of Edmond de Goncourt's room is masterly. The water-colours of "London and Rome" by Mr. Walcot, at the Fine Art Society's Gallery, are of an opposite class—somewhat washy and deficient in definition, and he is not quite at home in perspective; in the drawing of the Constitution Hill arch the line of the blocking course is quite out of perspective. Mr. Walcot is at his best in broadly treated sketches, such as that of the Baldacchino in St. Peter's; and he has made an effective picture of Lincoln's Inn Fields with one of the old brick gate-piers as a foreground object. The collection is unequal in merit, but there is some powerful work in it.

## THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE usual fortnightly meeting of the Royal Institute of British Architects was held on Monday, at No. 9, Conduit-street, W., under the chairmanship of Mr. E. T. Hall (Vice-President).

Mr. Alex Graham (Hon. Secretary) announced with regret the decease of Mr. Edward Augustus Ould, of Liverpool, elected a Fellow in 1900.

### *Town Planning.*

Mr. H. V. Lanchester read a paper on "Town and Country: Some Aspects of Town Planning."

After some general remarks on the subject, Mr. Lanchester proceeded to embody his view as to what ought to be done in a large town by an imaginary description of what had been done, as explained to a supposed Colonial visitor; and from this we take some of the principal points:—

"We will turn our steps towards the south-west, this being the shortest route to the collecting road that encircles the business area. When starting the improvements it was felt that such a road was desirable, and it was carried through the districts just going out of use for residential purposes. As you see, it has been almost entirely taken up by shops and hotels, while there are also three theatres facing into it. Considerations of cost did not admit of this street being expanded into a boulevard, but fortunately two large squares are in close proximity, and they are linked up to it by broad avenues. At the point where we reach this zone a space has been cleared for the municipal group; this was formerly the site of the workhouse, with the addition of two acres from the churchyard of the Georgian church you can just see standing back between the town hall and the law courts.

You have doubtless been disappointed hitherto at not having seen more study of decorative effect in our streets, but it was considered that the stress and rush of business detracts from the likelihood of a proper appreciation of such embellishments. In this square, however, you will realise that we have not been neglectful of our monuments and their setting; the rise in the ground has enabled us to place the city hall on a podium carrying several important groups of sculpture that complete the scheme of the sculpture on the building itself. The advisory committee of architects has always recommended that all monuments should be so placed so as to be seen only against a suitable background, and that if possible they should form part of the composition of a building or group of buildings; for example, you see the memorial museum in course of erection between the square and the little public garden to the north. The centre bay of the loggia will frame in a statue.

You say you thought we already had a fine museum; quite true, it is now attached to the university group; but this one is provided by a recent mayor for the express purpose of illustrating municipal history, work, and progress, somewhat on the lines of the Carnavalet Museum in Paris. The collection is at present housed in the town hall, and it would be worth while to spend ten minutes in the room devoted to the foreign tour of our town commission before the present improvement scheme was put in hand. This commission divided itself into three sections—one collecting data as to the character and placing of the public buildings and monuments, the designs of the open spaces, and generally with the more definitely architectural side of the subject; while the second took in hand the matter of town extension and surroundings; and the third the sociological aspects of the question. We shall see in due course the work of these latter, so we may for the present content ourselves with a brief review of the methods of the first section in their study of the principal cities of the Continent.

As it would be out of the question to go over all the ground they covered, we will limit ourselves for the present to that portion of these studies bearing on the problem of our city square. I will point out three examples of the closing in of the public place so strongly advocated by Camillo Sitte. The first, from Nancy, shows the buildings connected by semicircular loggie; in the second (the Plaza de Commercio at Lisbon) they are skilfully linked up by a triumphal arch; while in the third the desired effect is produced by the closing of a short vista with a building designed in harmony with those fronting on the *place*. This last has the advantage of being both more subtle and more practical than the other two, though of course there is room for the adoption of any of these three solutions, not to speak of a fourth in which the planting and massing of trees would take an important part.

Passing on from the lines of the square to its decoration, we may notice a few views of sculptured monuments and fountains particularly well studied with regard to their surroundings. From these we may turn our attention to sculpture treated in direct relationship to an architectural composition.

This committee's report evoked a remarkable enthusiasm in the city, and the inclusion of some references to the methods of the Romans at the zenith of their power induced a number of our leading citizens to contribute substantial sums towards civic embellishments and improvement; an equal sum

was raised by means of a special rate, and thus we were enabled to carry out a large proportion of the work you now see. . . .

A few hundred yards further we reach one of our most important undertakings—the great water avenue. You will remember our river, a turbid and tortuous little stream, of which by no stretch of the imagination could one be proud. Here it came within a hundred yards of the main road, and then burrowed away under the railway goods yard to the north-west, returning again under the line about a mile further on, just where the open country used to begin. This long loop was hopeless—in addition to two tunnels under the railway, there were three or four factories, the appearance of which destroyed all chance of doing anything with it; at the same time it was felt that it would be a fine thing to make a river a feature in the design of the city and to provide a convenient location for water sports. As there was but a strip of less than a hundred yards between the main road and railway a landscape treatment was obviously unsuitable, and the straight canal almost suggested itself.

At the city end a circle 150 ft. in diameter is surrounded by a raised terrace formed by the boat-houses, etc., with a terminal and two flanking monuments; from this there is an uninterrupted stretch of over three-quarters of a mile with two bridges and then a wider basin surrounded by an embankment terraced to give a view of the finish of the races and of the water sports usually held here. On either side is a double avenue, and beyond this lies on the one hand the thickly planted mound screening the railway, and on the other a narrow garden abutting on the main road. The straightening of the road formed part of the scheme, and this, giving a series of irregular strips on the other side, the readjustments afforded the opportunity of providing an enclosed garden which helps to balance the effect of the water avenue on the opposite side of the road. This garden is gradually being ornamented with monuments illustrating the principal events in the history of the city.

The other main avenues out of the town are very varied in character, more than half are the old highways that were in many places far too narrow for the traffic that streamed through them. We began by widening these, but it was a terribly costly business, not only in the value of properties taken, but also in the disturbance of interests in those untouched. Tradesmen complained bitterly that when the whole of the opposite side of the street was swept away, and for the succeeding two or three years long stretches of hoarding took the place of brightly-lit shops, the street lost ground and took years to recover its popularity. To avoid this we tried the experiment of picking out a series of parallel but unimportant streets and linking them up into a supplementary thoroughfare connected at frequent intervals by cross-roads and arcades with the main one, and with a few open gardens between in order to emphasise the connexion. The success of this scheme appeared for some time to hang in the balance, as the traffic held to the old road and ignored the new, until the resolution to bring trams along this route forced us to allot one line to incoming and the other to outgoing vehicles. This at once advertised the new street, and it is now almost as popular as the old one.

Most proposals for the relief of traffic in a congested street have been made without taking into account the fact that the bulk of the traffic (at all events allowing for standing vehicles, the traffic occupying the larger proportion of the area) is due in most cases to the business and the popularity of the street itself, and that any alternative route will, possibly for some decades to come, only divert a portion of the through traffic. The conclusions of the London Traffic Commission were found to be vitiated by neglect of this consideration, and as a result several important improvements have failed to produce the result anticipated. We now attach great importance to this method of duplicate streets with single-way traffic as a remedy for overworked routes. Of course we do not regard these as show streets, though their curving lines and frequent irregularities give a certain charm, and the preservation of the character of the old highway counts for something.

You ought to see one or two of the new routes that have been added to our system of radial thoroughfares: they are not as uniformly wide as the standard adopted in some other cities, and have not the continuous avenue of trees so often demanded; our earlier experiments proved that trees so placed had a miserable struggle for existence, and compared most unfavourable with those massed together in the squares and gardens. The merits of Hénard's *boulevard à redans* were discussed, but the effect of this was felt to be monotonous, and the small recessed courtyards are of less utility here than they would be on the Continent. While the general width does not exceed seventy or eighty feet, the frontages are set back where the improvement scheme offered facilities for such an arrangement. This breaks the monotony by showing return frontages in light or in shadow, by opening up the road to the sun, and by giving space for grouped trees and shrubs. In one or two of the busier quarters ranges of one-story shops line the footpath in these wider sections. . . .

When the problem of arranging a park system first arose opinion was divided into two sections, and discussion ran high for some time, one party taking the view that the traditional type of the English park should be adopted, and the other that all natural characteristics should be preserved and maintained, and that the sharpest possible contrast should be presented to the artificiality of the city, all boundaries extending far enough to make the landscape complete. . . .

The two schools eventually effected a very reasonable compromise. It having been decided that an easily accessible series of parks and recreation-grounds was needed, and as these had to be secured where land was available, without much regard to natural features, they have been laid out on formal lines based on the plotting of their own and of the surrounding buildings; while the opposite treatment was accepted for the more remote parks and common lands, some of which lie from ten to fifteen miles from the city, all of which, however, are linked up with the inner park series by means of parkways. . . . In some cases we have provided a boulevard parkway with electric tramlines on which a specially arranged service is run on Sundays and holidays; others have footways merely, through selected strips of country retaining as far as possible a rural character; and thus at a minimum of expense all classes of patrons are brought in touch with the places of recreation. A large proportion of these outer parklands were existing commons handed over to the city authorities. The additions have all been selected for some specific reason, either their own beauty or as affording extensive views, or sometimes because of their possessing a specially characteristic or rare flora or fauna. The naturalists' societies and field clubs have been of great assistance to us in these selections.

It will be realised that the extent of the area under the jurisdiction of our parks committee encloses quite a number of subsidiary towns and villages, and of course the requirements of these have had to be taken into account.

The proportion of the country now laid under contribution to provide open spaces for our cities makes it obvious that the time is rapidly approaching when the whole of England will for this purpose be divided into spheres of influence more or less under the control of the great centres of population much as the land has already been divided up for purposes of water supply."

Mr. Lanchester added that in this imaginary description he had endeavoured to be thoroughly practical and to suggest nothing that would not be easily within the powers of any of our great municipalities if once they can be got to realise the desirability of such an achievement. We could not hope to keep for ever the commercial supremacy of the world; special circumstances threw it into our hands, and it was not to be expected that a small country like ours would permanently retain the hold it has had on the world's commerce during the past century; but England, if she set her house in order, might offer such delights in the way of pleasant and rational life as to secure and retain the affections of the English all the world over. England, with its antiquities and traditions carefully preserved, its cities clean, convenient, and filled with noble and interesting works of art, with all the beauties of its countryside linked up with those of the town, would, by reason of the variety of its scenery and the shortness of its distances, be in its way one complete garden:

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Mr. Speaight remarked that the ideas of the author, however brilliant in their conception, were rather in the clouds. A scheme to be successful must always be accompanied by a financial statement, and he considered it would be better if architects addressed themselves more to schemes which were capable of realisation.

Mr. W. H. Lever, M.P., said that the reason more was not done in this country to carry out city planning was because those who were known as the men in the street had not seen the best examples. If they had seen the best examples in other parts of the world they would better be able to bring forward schemes in this country and overcome the opposition of the town councillor and the town surveyor. He was positive that if they could show to the people who lived in the towns the much happier conditions under which the people in other countries lived, then although they might not make such an ideal advance as the author had pictured, yet it would make them dissatisfied with the present conditions, and in every improvement attempted in the future they would aim at a higher ideal. There was no doubt that they were influenced by the fact that from one end of Great Britain to the other, with the probable exception of one or two cities, such as Edinburgh, they had not a single real decent example of town planning. They had cities like Dublin, where a good beginning had been made, but where things had never been really completed. London was also a city of great possibilities which had never been realised. If they kept these ideals before them and gradually aimed at them in all their new developments and in the laying-out of their suburban areas, he could not help thinking that in another fifty years, without any serious expense at all, they would gradually transform the character of their towns, and practically with no financial difficulty. Those problems were entirely a matter of time. If they determined to carry out improvements with the utmost possible speed, then they became very costly; but if they were willing to make their plans in advance, and in all new building operations sanction only that which had relation to the plan, he could not help thinking that they would be able to carry out with very little expense the object they had in view. The only way in which they could bring it home to their town councillors and engineers was by education. It was astonishing how densely ignorant their town councillors were, even in the big cities. He said this with all respect, because he was certain they recognised their duty to their town not only from the economic point of view, but from the point of view of beauty. The fact was that their view was so restricted, their horizon was so limited. For

instance, he knew of a case where they were proposing to make a street 80 ft. wide between Birkenhead and Chester, and along which before long a double line of tramways must be laid. They were told by the local authority that if the road was laid to the width of 80 ft. the local authority would not take it over, because of the expense of maintenance. The only answer he could give was that the adjoining city of Liverpool had promoted a Bill to make streets of 80 ft. under such circumstances compulsory. He thought that anyone willing to dedicate land for the laying-out of such streets should be helped. He should add that it was not intended to make the street of macadam for the full width, but a macadam roadway of 36 ft. would have been made, and the remainder could have been laid in grass. He really felt that Liverpool had given an example in this respect to a great many cities in the country, and if they could only get two or three of the great centres of population to start on the right lines he was satisfied their influence would be enormous. Those of them who had travelled round the world must have been struck with the difference between Sydney and Melbourne. The people who laid out Sydney had not seen any other cities except English cities. They went from England when the worst town planning was being made direct to Australia, and they laid out Sydney, which might be Liverpool, Glasgow, Manchester, or Birmingham—that was the style. When the next city in Australia was laid out—Melbourne—the people approached it through the United States, and had in view the American idea of town planning, and so Melbourne was laid out with good wide streets on the ordinary American plan. They saw the influence of American ideas clearly marked in Melbourne, whereas they saw the influence of England marked clearly in Sydney. When, however, they came to Adelaide, they found a little resemblance to the planning of Melbourne, but they had a much better combination of the English and American style in the city. It had all the width and beauty of American planning, but there was the attempt to make it more beautiful and to adorn it with trees and other things, which added considerably to its charm and beauty. If all of them in England knew of the town of Adelaide they would not need to go for any other example in the future. They wanted to know all these examples, and they wanted it to be known from one end of the country to the other how cities should be laid out. The important thing was to have the main power given to the local authority to dictate as to where streets should go, and what their widths should be, for the present haphazard way of laying out suburban areas was wasteful in the extreme. Within a short distance of where they were sitting he knew of a street which was constructed and had to be widened within ten years. If they could not see their town planning ten years hence they ought to be ashamed of themselves. They wanted to fix their minds on an ideal such as they had heard that night, and then go on so far as their circumstances would allow and strive to attain such ideal.

Mr. Andrew Taylor, L.C.C., hoped that some millionaire would give Mr. Lanchester the opportunity of putting his delightful ideas into effect. He was perhaps more interested in the improvement of London than in the fanciful country towns which the author had referred to, and, as a member of the London County Council, he had come there hoping to get ideas which might be useful. He had no brief to speak for the London County Council, but he could say that they were all very much interested in the question, and every member of the Council was desirous of improving London in some form or another. It was partly on account of his interest in the subject that he ventured to enter the Council, in the hope that he might be able to do some little thing in regard to architects and the improvement of London. They had not been able to do very much, for they had rather been waiting for the Town Planning Bill of Mr. John Burns, and they had also the London ratepayer before them. As soon as the ratepayers saw it was an advantage they had plenty of ideas which they hoped to carry out. He strongly supported the idea of having competitions amongst architects for the improvement of London—not only of the central part, but of the suburbs. He believed it was part of the town planning scheme that they would be able to go to the authorities around London and make a plan providing for boulevards and roads to approach the town, and compel them to accept the plan. Nothing could be more interesting than a competition in which their brightest young men, as well as their older men, could give them their ideas, and by that means they could get ideas which could be carried out. Those of them who went to Vienna last year must have come back feeling how very much behind this country was in town planning, and they must have felt an inclination to put bombs under all their public monuments and a good many of their buildings and blow them up. Mr. Lever had been one of the pioneers in this good work, and had the gratitude and respect of all the architectural profession for what he had done. He understood that Mr. Lever had gone further, and had offered a sum of money so that young students at the Liverpool University might study the subject of town planning. That he considered a most excellent idea, and trusted that it would bear fruit.

Mr. Raymond Unwin said his experience of the subject had been in dealing with much humbler subjects than that sketched out by the author, yet he felt very much indebted to him for giving them such a wide outlook. It would not perhaps be right to say that Mr. Lanchester spoke in continents, but he certainly approached to that magnitude in the scale of his imaginative designs. Great and valuable, however, as was the help being got from such schemes, yet as professional men they must not do too much to frighten the public by putting before them big schemes which were not, as it were, quite sufficiently the outgrowth of the actual life of the towns. They wanted to take the very best grip of the life of a town which was developing, and for which they had to find in town improvement schemes an expression, and so work out for that rather than to work backwards through schemes in the air. He did not mean to say that there was nothing useful in schemes in the air, and it was particularly appropriate that they should have a large imaginative scheme before them in a society like that to stimulate them in their work. But it was important to consider other sides of this work of town planning. They must not lose sight of the fact that the Germans, who had perhaps had more experience in modern town planning than any other nation, were departing fundamentally and entirely from what was generally known as the "grand manner" in town planning. They were going very much to the other extreme, and their plans were becoming too much "niggled" and worried in detail. None the less, there was a good deal to be learned from the German point of view, and he would have been personally glad to have heard the author's point of view as to the relation between formal and informal work. One of the most difficult problems in the laying out of estates was to decide in welding the town to the country as to the relative importance of formality and informality. For his own guidance he had rather taken the line of considering that one's duty was to treat the conditions of one's site with very great respect, and to preserve everything of natural beauty found upon it as far as possible. What, however, they had to do, it seemed to him, must be done in a formal manner. It appeared to him that if they had a rough-and-ready working theory, that so far as the site offered spots of beauty, irregularities of undulating contours, and so forth, they would get in their work as much of the beauty of the curved line for the natural features; but as soon as they let that side of their work oppress them, with the view that there was anything virtuous in irregularity and informality for its own sake, then they were giving too much weight to that side. The thing which a man did it was natural he should do in a formal and straightforward manner. At the same time, to take one's site as if it were a level billiard table, and lay out a scheme without regard to the natural features, was erring just as much on the other side, and was treating the site with altogether too much disrespect. The author's suggestion of wide avenues out of the town was most important. They had at the present moment the Finchley-road, which was one of the most important avenues leading out of London. It was already crowded with traffic, and yet a double line of tramways was being laid, and no doubt within a few years vast sums of money would have to spent in widening the road, which could now be done at a nominal cost, if they had the powers, as they hoped to have under the Town Planning Bill, of dealing with these things. The garden city was intensely attractive to the Englishman, but it was one which had many puzzles for the architect. There was a great tendency for the houses to become too scattered. The desire of the modern Englishman was to have his house detached, or at least semi-detached; but if they covered acres and acres of ground in that way they could get very little total effect. The author's suggestion as to the grouping of trees really gave them the key-note as to what they should aim at—to try rather to group their buildings to open spaces. They should gather their houses into groups instead of having them detached, each group having some architectural form and arrangement. The importance of defining their areas was one of the things they might learn from the beautiful old cities. Take Wurtemberg, for instance, which had remained in the same state for centuries. There they had the country coming right up without a break to the walls. If they compared that with the fringe of derelict buildings and rubbish heaps which formed the entrance to their modern towns, they would realise the immense importance of setting limits for coming up to those limits before they passed on. They would not, of course, enclose their modern towns with fortified walls, but they might at least enclose them with decent avenues. He thought there was a little danger if they got too much into their minds the planning of their towns on the principle of zones. He thought it was better to have supplemental centres, for in the planning of any town or district, or even a building site, it was well to have some central feature around which the plan grouped itself. After all, the plan was the design, and they must have scale in their design; some things must be emphasised and others subordinated. They could greatly beautify their suburbs if they grouped the public buildings and the business premises, which always grew up around them, in a stately manner, and so formed a fit centre for arrangement.

Professor Reilly, in proposing a vote of thanks to the author, said he had held up that night the ideal rather than the immediate prospect. He felt they were all so much concerned in the actual carrying out of the details of small buildings that they became rather like squirrels turning round in a cage. He (the speaker) had, as they knew, had a very serious responsibility put upon him by Mr. Lever in trying to set up at the University of Liverpool a school to study this great subject. He felt that the first thing they must do in such a school was to see that they got as Professor of Civic Design a gentleman able to conceive great schemes of ideal projects—things which would stir up the enthusiasm not only of the students, but all interested in noble

architecture. He felt that this was as important as that kind of teaching which would enable the practical problems of the immediate future to be dealt with. There was no time for him to sketch out the details of such a school, but he was convinced to achieve success it must appeal on the one hand to architects who would dream dreams, and it must train up borough surveyors to see that those dreams were worthy of consideration. He therefore said from the outset they must have two classes of students. They must have the architects who wished to widen the scope of their functions, and the borough surveyors who must be taught exactly what their functions were. He associated with the vote of thanks the name of Mr. Rickards, who had made a number of the drawings they had seen. He felt that most of the younger architects had been inspired by the building of Messrs. Lanchester and Rickards when they had looked at the municipal buildings at Cardiff.

Mr. Delissa Joseph, in seconding the motion, said they had been deeply impressed with the charming outlines of the fairy city which had been placed before them, but one could not help recollecting that there was a municipal spirit on the Continent which was absent in England, and so long as that municipal spirit remained undeveloped so long would it be before their great ideals became accomplished facts. On the Continent the architect occupied the position not only of adviser, but frequently he was the head and front of the municipal spirit of the town. In Germany they found that the architect not only designed a building, but also took a great interest in the movements which resulted in the beautifying of the city. Why should they not try to bring into existence something like the Ministry of Fine Arts as was instituted in France, so that, with the aid of local committees of taste, there might be some control over the designs of buildings, in the same way as the Legislature had at the present time permitted the control over the structure of buildings? If they were able to bring about something like that they might prevent the disfigurement of the country-side which was going on all around them.

Mr. G. T. Brown said he supposed they were within possible accomplishment of the Town Planning Bill becoming an Act of Parliament, and he thought, if any steps were ever to be taken in realising such ideals as the author had set before them, they, as an Institute, would have to initiate some movement to help them forward. If the Bill became law the inception of town planning schemes would lay with the municipalities and district surveyors, and he quite agreed that they needed a certain amount of education. He thought it very probable that special town planning committees could be appointed, and he felt that the Institute should take some steps to try and have co-opted on such committees representatives of their profession, appointed by the Institute in London and by some of the allied societies in the provinces. If this were done it was probable that the general taste of such committees might be very greatly in advance of what it might otherwise be. A reference had been made to a Ministry of Fine Arts, and he felt such a ministry was needed in almost every centre of the country to advise municipalities with regard to the particular lines they should take, not only with regard to the planning of the streets in a town, but also as to the laying-out of open spaces and dealing with the different elevations of buildings which came before them. It ought to be a criminal offence to put up some of the buildings they saw. The work of the architect was always present. If a doctor made a mistake it was put under the ground; but not so with the architect. It was a fact that sometimes buildings were put up which, without being immoral, were immoral in that they had a bad effect on public taste for all time. He agreed that the financial aspect was an important one, and he could give an illustration. A few years ago Mr. Cackett, the President of the Northern Architectural Association, spoke about a scheme in Newcastle-on-Tyne for removing some slums, and he pointed out to the Corporation the advantage it would be if they purchased more land than they actually required for the widening, and so allowing of proper frontages. The whole scheme was laid before the Council, but no notice had been taken. The Institute had done a certain amount of good in getting themselves recognised as interested parties in town planning schemes, but he hoped their efforts would go further.

The Chairman said there had been a Town Planning Committee in connexion with the Institute ever since the conception of the idea, and active steps had been taken in the direction of seeing how municipalities and others could be assisted as soon as the proper moment came. There was one thing which they must not forget in dealing with town planning, and it was that in old historical cities like London there had been historical plans, if he might use such an expression. For instance, the first Roman London had its limits in what was known as Sherborne-lane. That was the boundary of London, and hence that street. Then, again, London was extended to Walbrook, and that was a street. Consequently they must remember that those streets were not always accidents, but historical growth was represented by many streets which were now looked upon as poor streets, which if they were starting *de novo* to design they would not have had. He was much interested in Mr. Unwin's remarks as to the advantage of doing away with the little gardens and throwing them into areas, and that scheme had been adopted on the Dulwich College Estate, with which he was connected. As regarded those estates which covered about one-sixth of the whole area of inner London, the Governors had laid down a scheme by which plots of from 10 acres to 20 acres were being kept open as playing-fields for those in the surrounding houses. The estate itself was 2 square miles, and when it was ultimately covered with houses he thought people would look back to the Governors at the present time with respect for providing those oases in the desert of houses.

Mr. Lanchester, in reply, said that, as to the suggestions made that he had not dealt with the financial side of the question, he did not consider that possible, because his paper was written merely with the idea of setting other peoples minds working.

The Chairman announced that the next meeting would be held on Monday, March 1, for the election of members and other business.

## THE ARCHITECTURAL ASSOCIATION: SCHOOLS.

THE following is the conclusion of Mr. H. T. Buckland's paper on "Schools," read before the meeting of the Architectural Association on February 5, and our report of the discussion which followed.

*Laboratories.*

"It is not within the scope of a paper like this to go into details with regard to the various rooms which are needed for what one might call special instruction. I shall therefore only attempt to touch upon points which seem to present matter for discussion. Upon the subject of laboratories the Rules say: "A physical laboratory should be free from vibration, and for that purpose placed on the ground floor, where possible, and should be capable of being darkened." This instruction with reference to the position of the physical laboratory is fairly definite, and has severely exercised the mind of many a beginner in the planning of schools; but is it of vast importance? If so, why are so many physical laboratories placed on an upper floor; as a matter of fact, the teaching of physics in a secondary school is not of such an advanced character as to demand the extreme freedom from vibration which can only be secured on a ground floor. On the other hand, a point very lightly touched upon in the Rules is the balance-room; these are the words:—"If there is no balance-room a separate place in the laboratory should be assigned for balances." It is, I think, very generally agreed that a balance-room *is essential*, as it is important the balances should be kept free from the chemical fumes. One of the advantages to be gained by placing the various rooms for special instruction on the upper floor is the improved lighting which can usually be achieved; it is scarcely possible to get too much light in laboratories, and very frequently if these rooms are on an *upper* floor, light can be obtained from more than one side by judicious planning. If good light is essential in laboratories, it is more so in an art room. The chief function of an art room, if the Rules of the Board are to be interpreted literally, is to defeat the object of its own teaching by utterly spoiling the architectural design of the building in which it is placed. In speaking of the advanced art room, this is what will be found:—"This room should be lighted from the north side by a *single large window square at the top* to give as much light as possible."

*Lighting.*

If one is lucky in the matter of aspect, one may be able to get this *single large window* square at the top, facing an area, or concealed from view by roofs; but if the aspect is not favourable, and one of your important elevations faces north, you will need the skill of a Michelangelo to make the type of window an art mistress sighs for harmonise with the scale of your building.

And is this north light in such abundance the one and only light which will enable the scholars in a secondary school to benefit by the teaching given for an average of eighty minutes per class per week? I put the following question to the headmaster of one of the first art schools in the Kingdom: "From which quarter would you prefer the light of an art room?" His reply was: "I don't much care from what quarter it comes so long as I can get plenty of it, and still have enough if I have to shut out some when the sun gets in. I prefer some sun, as I may need a class to study the effects of sunshine on various objects; flowers and foliage under sunshine have new revelations for us."

A north light for a studio painter of large pictures is, I believe, a *sine qua non*, but a secondary school is not dealing with such, and I question whether sacrifices in the design of a building should be demanded where the need does not really exist. For all practical purposes, in my opinion, a well-lighted class-room with ordinary windows, possibly from one side and an end, or two sides, will serve admirably for the kind of art teaching which is given in a secondary school.

A point with regard to dining-halls and the kitchens in connexion with them, which is perhaps worthy of note, is the desirability of providing a separate entrance for trades-people; this will generally, I think, be found a great convenience. A library in a secondary school, although not insisted upon by the Board, is certainly a very desirable attribute. As far more time is spent by teachers in secondary schools in preparation work, correcting papers, etc., than is the case in elementary schools, larger and more comfortable rooms for their use will need to be provided, and the headmaster will require a really spacious room, as books and papers with which he has to deal will occupy a lot of room.

In cloak-rooms twice the length of hanging space is required as compared with elementary schools, and in neither should lavatory basins be placed in the cloak-room.

A point which will materially influence the architectural treatment of the elevations is the large area of window lighting required by the Rules, which state that: "The area

of window glass should approximate to one-fifth the area of the floor space in rooms used for teaching, and in other rooms not less than one-eighth." I doubt if so much is often given or really necessary. I need hardly mention that light is required to come to the left-hand side of the scholars. A point of importance is emphasised in the following clause:—"Unless the top of the windows be more than 12 ft. above the floor the plan should show no space more than 20 ft. from the window wall in any room used for teaching."

*Sanitary Accommodation.*

With regard to sanitary accommodation, it is suggested that the girls' offices should be in the main building, and those for boys completely disconnected and at a short distance from the school. In a girls' school some headmistresses advocate the distribution of a small number of water-closets on the various floors in addition to a main block of offices. Automatic flushing for closets is undesirable, and each closet should be fitted with its own apparatus. In elementary schools an automatic flushing system is almost universally, I think, adopted, although I understand that many educationalists advocate the employment of an independent flushing apparatus, with a view of inculcating habits of decency from the earliest moment. In one case I know of where efforts in this direction were made in an elementary school, the result was not satisfactory, and an automatic system had ultimately to be installed.

*Ventilation.*

If the *planning* of elementary and secondary schools does not present many points for great differences of opinion upon general principles, and in the main I think it does not, one has not far to seek for matter to provide quite adequate discussion. If I thought any heating engineers were present, I don't know whether I should have the courage to mention the word "ventilation" for fear of the discussion I might provoke. I want, however, to touch upon it from the point of view of the architect, and not of the expert. Of its importance there can be no question, since the only real departure from accepted methods of school planning owes its origin to a desire for a *natural* system of ventilation. I refer, of course, to the Staffordshire school already mentioned. The question at issue appears to be whether efficient ventilation can be secured for comparatively crowded rooms without the employment of mechanical agency.

Dr. Reid, the County Medical Officer for Staffordshire, maintains it can, others that it cannot. Whether each mean the same thing by efficient ventilation is open to doubt, if we define it as "an adequate supply of fresh air of a proper temperature, admitted in such a manner as not to cause a perceptible draught." Sufficient movement to obtain a change of the air in a room is the main essential in any system of ventilation, and whatever means may be employed must be directed to this end.

In the case of the Staffordshire schools, the movement of the *atmosphere* is relied upon to effect the necessary change, and a through draught is faciliated by means of open windows on both sides of the rooms, in addition to a ventilation grating at the back of the heating radiators; the windows are so arranged with a hinged, glazed screen at the base, which it is claimed gives an upward direction to the entering air; and the same arrangement serves for exhausting the vitiated air, the window on either side acting as an inlet or outlet according to the direction of the wind. Time will not permit me to go into all the claims made by Dr. Reid in support of the type of plan he advocates, his main contention, however, to quote from his report, is: "That if the central hall type of school is to be maintained, it is only by employing mechanical means that anything approaching adequate ventilation can be obtained, and even with such means the result is not satisfactory; and that the solution of the question is to be found in the plan which is described as the Staffordshire type." Whether such a plan as this, is as Dr. Reid claims, "quite compatible with educational requirements," is open to question. One central hall for three departments, of necessity, as was pointed out to me by a prominent educationalist, does away with the morning assembly of two of the departments, and the need for a head master and mistress as such almost disappears if their personal intercourse with the children is reduced to a minimum. It is open to discussion whether such a sacrifice is worth making on the *assumption* that a satisfactory method of ventilation *cannot* be secured even by mechanical means in a school planned with the class-rooms round a central hall. One is justified in assuming that Dr. Reid is only familiar with one method of mechanical ventilation, viz.: the "Plenum" system, as his report at the outset remarks: "All systems of mechanical ventilation, moreover, present a shocking object-lesson to the children from their inherent need for having *all windows permanently* closed."

*The Plenum System.*

So far as the "Plenum" system is concerned this is true, and the argument is a weighty one against its use. Personally, I have found a majority of the teachers in "Plenum" ventilated schools adverse to it, and this is particularly the case with lady teachers.

Bearing upon this question, the opinion of Mr. Felix Clay, Architect to the Department, as recently given in evidence before a Consultative Committee appointed by the Board of Education, will be of interest. I quote from a report in the *Builder* of January 2:—

"The 'Plenum' system has many strong supporters who are able to show that, chemically, a fairly pure atmosphere is maintained by it. Mr. Clay, however, was strongly adverse to its use for school purposes. In the 'Plenum' system warm air is introduced under pressure into the upper part of the room; this being at a higher temperature than that already in the room, spreads over the ceiling, and being under pressure, produces a gradual downward movement, passing out of the room at the floor level. Certain objections to the system are the warming of the rooms by hot air only; this requires raising the incoming air to a temperature that seems to destroy some of its invigorating qualities and produces a somewhat enervating effect. Perhaps the chief objection is that, for the proper working of the system, it is absolutely necessary to keep the windows closed, and, in order to ensure this, the windows are not as a rule made to open; this has a very serious disadvantage in accustoming the children to sit in rooms with the windows shut." Any system which meets with such strong condemnation from different quarters will find it hard, I think, to endure. One has not far, however, to seek for an alternative, which appears to provide the advantages of a natural system with open windows, without necessitating the abandonment of the generally approved central hall type of plan, a system of mechanical extraction will, I think, be found to meet the case. Such a system is practically the reverse of the "Plenum"—the foul air being sucked out, and the fresh air drawn in, instead of the fresh air air being pushed in, forcing the foul air out. This system was employed in the secondary and elementary schools at Rotton Park, previously shown. In that case, fresh air is admitted to the various rooms by means of gratings at the back of the radiators, and through the windows, in which the lower portions open as hoppers and the upper casements swing; the foul air is drawn from the rooms through a grating fixed in a riser extending the whole width of each class-room, this riser is in front of a duct which communicates with the main underground ducts all running to the extract tower, at the base of which are fixed two large centrifugal fans driven by electricity. In addition to the grating at the floor level, there is a small grating near the ceiling, at the head of a flue which communicates also with the underground ducts; this is for the purpose of drawing off the extra heat and fumes arising from the gas lighting. The whole of the windows may be kept wide open if required. No chemical tests have been made of the air in these schools, but so far as the evidence of the senses and the testimony of the teachers is concerned, I have every reason to be satisfied that it is such that both teachers and students find it stimulating and comfortable to work in. It certainly has the merit of being almost entirely under control. Doubtless satisfactory results have elsewhere been achieved by similar methods.

Of the methods of heating at one's disposal, we now have many. Low-pressure hot-water is still so dear to the hearts of many that one is loth to disparage an old friend, but it will, I think, generally be found difficult to obtain really adequate heating in conjunction with a proper air supply without resorting to some more rapid system of circulation.

The various systems of forced hot-water circulation, although differing in method, all have the same end in view, viz.: acceleration, and it seems obvious that the oftener you pass the water through your boiler the warmer you are likely to keep it, assuming your boiler can supply the requisite heat.

Atmospheric steam has been largely used of late years, and my experience of it in large buildings is certainly favourable but my impression is that the tendency among heating engineers is distinctly in the direction of accelerated hot-water systems.

A weighty argument always advanced by the advocate of ventilation by natural as compared with mechanical means is the question of cost. Not only first cost, but also cost of maintenance. Ventilating engineers may have some reply to this; I have none, except that if efficiency is required it will need to be paid for. As regards the question of first cost, Mr. Clay, in the evidence already quoted, estimated the cost of installing the "Plenum" system at from 1,500*l.* to 2,000*l.* in a school of 1,000. I am inclined to agree with this, if the figures quoted represent the cost over and above a natural system, i.e., to say I consider the "Plenum" system adds from 30s. to 2*l.* per child to the cost of a school for 1,000 children. A system of mechanical extraction such as I have described, adds less as the size of the ducts does not require to be so great, or the finish so good as in the case of the "Plenum." This naturally brings us to the whole question of cost of school buildings.

*Cost of School Buildings.*

Speaking always for the provinces, my own experience is that an elementary school cannot be built for a reasonable number, say from 750 to 1,050, at less than 10*l.* per head, and to achieve this the site must be level and have a good foundation. The school at Acocks Green will cost, I understand from the architect, rather less; probably not more than 9*l.* 15s.; but this is an exceptionally large school and has classes each for sixty children. One education authority in the Midlands which has promoted several recent competitions, allows 14*l.* per head; for this, I think, a very decent school may be expected if no mechanical system of ventilation is required. Of course a good deal depends upon whether a school is in two or three departments. Ten pounds per head for a *three* department school is very low.

The Staffordshire schools in three departments, but with only the one central hall, cost 10*l.* 10s. 4d. per head.

Of "Plenum" ventilated schools I know of one in two departments which cost 15*l.* per head. A really well-built school with three departments and three central halls, a mechanical system of ventilation, and some regard to an architectural treatment

in design and materials, cannot, I think, be built for much less than 17*l.* per head. For that amount boundary walls, 14 in. thick, or walls and railings all round the site, and a caretaker's house, may be expected to be included.

These figures represent prices per foot cube, ranging from 5½d. to 7d., and as boundary walls and play-grounds are included in the prices mentioned per head, these items have to be priced separately and added in making up an estimate. In discussing the cost of secondary schools, I find myself at variance with the accepted method of pricing at *per head*. In elementary schools, given a certain number, there will not be much variation in the size and number of the rooms; but in a secondary school, although the number of class-rooms and children accommodated may be the same, the rooms for what I have called special instruction may vary considerably. Education authorities seem to lose sight of this fact, and in some cases invite plans in competition, stipulating for extra large laboratories and art rooms, swimming-baths, and many other things which do not form part of another school upon which they base their price per head. Thirty-five pounds is a favourite figure to quote, but a quite insufficient one unless the accommodation in laboratories, art rooms, dining-rooms, gymnasium, etc., is kept within modest limits.

Of the plans I have shown, the school at Bishop Auckland, by Mr. Reynolds, is estimated to cost 15,000*l.*, and for the one at Bromley, by Mr. Burke Downing, the sum of 8,000*l.* was mentioned in the conditions of competition. The accepted estimate for the schools at Barnsley was 18,672*l.* Of the schools at Rotton Park, I am unable to separate the cost of the secondary portion, as this and the elementary school were all in one contract. From 6d. to 7d. per foot cube will, I think, be found reasonable working figures, with further allowance for playgrounds and boundary walls.

My paper, I regret, has run to a far greater length than I originally intended, but my subject must be my apology, and it adds to my regret that I have treated it, I cannot help feeling, somewhat inadequately."

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Mr. J. Osborne Smith, in proposing a vote of thanks to the lecturer, said that many of the points which had been raised were tolerably new to them in London. They were not quite accustomed to the single-story school shown on the screen, in which children appeared to be packed rather thickly upon both sides of a central hall in classes of sixty. He looked at the question from the point of view of health—health of the children and teachers. A short time ago there was an International Congress in London on school hygiene, and Sir Lauder Brunton, who presided, said in his inaugural address:—

"The confinement and work in school have an exhausting effect upon many children, who suffer in consequence from anæmia and debility, and are ready to succumb to any active disease by which they may be attacked. In order to prevent this it is necessary that the children should have as much fresh air and sunshine as possible, that the ventilation of school-rooms should be perfect, and the children be in the open air whenever it can be managed."

We knew that adults, when they had to live and work very closely packed upon the acre, became debilitated and sickly, even the strong ones; and in the case of children, especially in the towns—the progeny of the people who were working in such unenviable conditions—special attention ought to be given to insure that those children should have the best conditions possible in the way of fresh air and sunshine, in order that they might not suffer more than was necessary from the surroundings in which their parents found themselves. Birmingham had adopted a wise course in having only single-story buildings, but it seemed to him that it would be better for the children if they were placed in schools of the Staffordshire type, rather than in the central hall with classrooms on either side. For although an effort had been made to get perflation across the central halls by Mr. Buckland's clever plan of roofing the classrooms in concrete, so as to be able to have windows above the external walls, there was the difficulty when they had classrooms on either side, which had led Dr. Reid to suggest and adopt the system in which there should be perflation right across the classroom.

Some experiments had been tried of open-air schools for children—for sickly and debilitated children. The first was formed—there was not much building about it—in 1904 in Germany for 100 children, who, for six months, used to come about eight o'clock in the morning, and they gave about half the time to lessons that was given in ordinary schools, and the other time was devoted to feeding, playing, sleeping, and moving about. It was found that these sickly, debilitated children, who worked only half-time, made better or equal progress in learning than the children who were normally healthy, but shut up in schools, and that was attributed to their being in the open air so much. This was tried in other parts of Germany, and in 1907 the London County Council established a school in England about which he believed a report had been published. All this showed that there was a necessity, especially in large towns, for introducing very much more air into the interior of school buildings than usually is arranged for. Mr. Buckland had dealt with the regulations of the Board of Education, and quoted the views of Mr. Felix Clay, the Architect of the Board, on the "Plenum" system. He should like to read what Mr. Clay said on the same occasion on natural ventilation, *i.e.*, "In the absence of mechanical ventilation, temperature enters into the problem a good deal. Children can be got accustomed to a very free introduction of air, and the rooms can be kept pretty fresh; and it is true that the fresher the air is the less sensitive are the children to cold—a vitiated atmosphere causes them to feel cold. It is wonderful how fresh a sensible teacher can keep a classroom without the aid of any mechanical system if the windows are suitably arranged." That expressed the essence of common-sense on this much debated question of ventilation. A great deal more depended on the teachers than one knew of in the matter of the introduction of air into rooms. There had been a great improvement in recent years, however. He went into a school some time ago when the day was cold enough for an overcoat: In one of the classrooms he found the windows open; the headmistress told him that the girls came from homes where they were used to the open window, and they could not live and work in the room unless the windows were open. That was what was wanted generally, with plenty of heating power at the same time; in such weather as we had been having lately that was very essential. If the incoming air were warmed there was no reason why there should not be plenty of ventilation even in the coldest weather. As to sunshine, he thought that the south-east aspect was the best. The morning sun was wanted in schools so as to lighten up the rooms when the children came shivering in. They should come into a bright, sunny classroom. A great deal of that might be sentiment, but one knew what doctors and others who had studied the subject said about the value of sunshine to the young. One also heard what the doctors said about the eyesight of children who wrote in shadow. They said it was injuriously affected, and he could well believe it; so that there was something in the question of left-hand light if looked at properly, and he did not agree with Mr. Buckland that too much was made about the importance of left-hand lighting. As to school buildings generally, there was a great difference of opinion. A gentleman who knew a great deal about schools, especially on the Continent, said that our modern schools were being made too permanent and too costly. The whole question of education and methods of teaching were in the melting-pot, and in the course of time we might find we should want different buildings altogether. Another gentleman said that the buildings were not made sufficiently dignified and imposing, seeing how important a subject education was—teaching should be carried on in grand public buildings in this the richest country in the world. Another, an expert, who had been to America on an education commission, came back and said that the school buildings in America were far too ornate, and that he did not want our schools built like those. Amid these conflicting views, the best thing to do was to confine their attention to the practical part of the question, which affected the health of the children, and design buildings of such a kind that the children could lead cheerful and healthy lives inside them. He strongly advised all students interested in this subject to read the papers on Country Schools, the Ventilation of Schools, and the Lighting of School Buildings in the *Journal* of the Royal Sanitary Institute for October, 1908; they were all written by architects.

Mr. Owen Fleming, who supported the vote of thanks, said the movement in favour of open-air schools was yet quite in its infancy, but it was growing. Mr. Osborne Smith said that the first German school of the kind was put up in 1904, but there were now quite half a dozen others, and for the last two years London had been attempting something of the kind. The first attempt on these lines in this country was an open-air school for anæmic and tuberculous children at Plumstead, consisting of sheds, open on one side, where education was given. When the weather was fine the children had their lectures or their classes, or play in the open air, and the idea was for the children to be as much in the open air as possible. Last year the system was taken further, and three of these schools were provided, and he believed that this year would witness a further development. Of course, as Mr. Osborne Smith had said, this was in a sense opposed to what Mr. Buckland had been showing them that evening. He (the speaker) had gone carefully over the Birmingham buildings, and he could testify that for that type of plan he had been much impressed with the care and thought shown, and he ventured to congratulate Mr. Buckland. Perhaps the one point he felt some surprise about was to find the gymnasium over the class-rooms in one case, but Mr. Buckland had explained that that was quite an accident. But what would they do if medical men were to develop this idea of more open-air in the schools and classrooms? It might result in a considerable modification of the present type of school. That would not be difficult in country villages and in the suburbs of small towns, but in London and the great manufacturing cities of the North it raised a good many difficult problems; for instance, open air would be accompanied by all sorts of atmospheric impurities as well as noises, and these would have to be dealt with in some way or other, and also the problem of education in the winter. These problems were not easy of solution. Seeing, however, the trend of the new views on schools, architects should be very tentative in what they did at present. There was another development which we might see take place during the next ten years, and that was as to physical education, which might possibly be more developed in this country than in the past. In Germany and Sweden—the pioneers of educational work—every school, elementary or secondary, that he had seen had a magnificent gymnasium, and many schools in both these countries were equipped with excellent bathing arrangements. Physical education was being more scientifically studied in the Teutonic countries than in London. He had seen classes of young Germans and Swedes, and he should say that physically they were

superior to the average class of Manchester, Birmingham, or London boy. Architects should also have regard to the scheme of medical inspection just beginning, when this developed attention would be directed to the grave defects of the physical condition of our children, and that might lead to some alteration of the type of school building. For these reasons he thought that while architects should persevere in the direction in which they had gone, they should keep their eyes open as to what was going on, not only in England, but in other parts of Europe, especially in Germany and Sweden. In Munich, Stuttgart, Strasbourg, and Stockholm were schools—elementary and secondary—in which there had been great development in many ways. The Germans had gone further in the matter of comfort than we had, and to a certain extent in the artistic treatment of school buildings too. But he was bound to admit that both in Germany and Sweden the cost per head was generally greater than in England.

Mr. C. Wontner Smith, Hon. Secretary, then read the following remarks which had been contributed by Mr. T. J. Bailey, Architect of the Education Department of the London County Council:—

Mr. Bailey said that Mr. Buckland only dealt with two kinds of school—the ordinary elementary type and the secondary school. To make the subject complete he should have expected some reference at any rate to be made to the higher elementary type on the one hand, and the schools for mentally and physically defective, of which there were several requirements, on the other. To take his remarks on the elementary school, Mr. Buckland naturally began with the site; as his remarks evidently only referred to large schools in towns, it was manifest that the Educational body had very little choice. It was not always possible even to obtain the 30 ft. of unbuilt-upon playground space which was regarded as a minimum by the Code of the Board of Education. In London, at any rate, considerations of rehousing obligations operated largely in the choice of a site. In the paper he (Mr. Bailey) read at the Royal Institute of British Architects some years ago he gave his observations on this subject, and could only repeat that the only ideal site was to be obtained in a not altogether built-upon suburb. No doubt the Board of Education was right in laying down the axiom that a three-story type should not be followed if space allowed for the buildings to be one or two stories high. The question of the desirability of a central hall had gone beyond the line of argument, and also, he was glad to say, had the question of whether each department should have its central hall or whether there should be one common to two or three departments. As the hall took the place of a corridor giving access to the various rooms, it was obvious that great confusion would ensue if the hall was used by another department than that to which it was attached; and if built as a separate block each department would need corridors and connexions with the hall, thus rendering the cost prohibitive. In a school of the size referred to in the paper, viz., 1,000 to 1,200 children, the point raised as to its being built as a two-department school—infants and mixed—was worth notice. It would not do to provide more than about 380 infants, and this would give a mixed department of 700 or 800, manifestly too large. The mixed department would therefore have to be divided into two, senior and junior, possibly under one head-teacher—preferably not. In large towns the position of the school with regard to the social position of the families supplying the children would probably determine the question of mixed or separate departments—the lower the grade the more danger in mixing. With regard to the sizes of the classrooms, the lecturer appeared to favour classes of from fifty to sixty. In the paper he (Mr. Bailey) referred to he dealt with that subject, and was glad to be able to say that all new schools and alterations to old ones in London under the County Council had a unit of forty for the classrooms, any variation of that being in favour of a smaller number, thirty or thirty-five, in the graded departments and not exceeding fifty in the infants, and he would here emphasise his view, expressed at that time, that no seats should be more than 20 ft. from the window wall, and he wished the Code would be altered accordingly; for elementary schools it was equally as important as secondary. Mr. Buckland made no reference to the desirability of providing any other rooms for teaching purposes than the ordinary classrooms. In his (Mr. Bailey's) opinion, and with the experience he had gained in building the schools of London for twenty-five years, he considered it very desirable that there should be a room for general science—not advanced work—and also a room for art teaching in the boys' departments, and rooms for teaching domestic subjects in the girls' departments, and he would have these attached to all schools; also a room apart from the main building in the boys' department for manual training work in wood or metal, or both. He was afraid the remarks on secondary schools did not give much guide to either the requirements or the points of planning, but he would remark concerning them (1) the number to be accommodated—Mr. Buckland knew of no recent secondary school which accommodated more than 400 in one department. He (Mr. Bailey) was building five secondary schools for girls in London accommodating upwards of 500 in each, and he certainly did not agree that a *central* hall was not the best arrangement with nine classrooms or more on a floor; it was surely better that they should discharge into a large hall than into corridors, and it was manifestly the cheapest arrangement for building, and he could answer for it that there was not only no inconvenience, but it was appreciated. There were many requirements in secondary schools which were not touched upon, but the variety of subjects taught and the needs in such an educational establishment needed more than a passing reference. As regarded the number of departments in a secondary school, it was best that in large towns they should be built as separate schools; of course, in country districts combined schools might be desirable, having regard to the smaller numbers to be provided for. Finally, and the only matter the lecturer touched upon in detail, on the question of ventilation, the remarks were all a criticism of the "Plenum" system, and as he (Mr. Bailey) understood it, a condemnation of it. This he could not agree with. In his opinion a really good modern installation on this type was the best that could be had, but there were so many prejudices against it that public bodies hesitated to adopt it on this account. He had installed it in five or six cases some years ago with great success. He had also installed it where it had been continually complained of. If he were to install it in a building now he would only have it in operation in the winter, leaving the open windows to ventilate in the summer, but the extra cost on the building for ducts and flues rendered the cost prohibitive where there was a desire to keep down the cost of a building to the lowest point. Experts favouring both systems would argue the respective merits for a week and would probably leave the hearers confused and unconvinced. He could only speak from his own experience. A head-teacher told him the other day in a school where the "Plenum" system was installed ten years ago that in foggy and frosty weather they were practically in the Riviera, and he had never heard any complaints from that school that the windows could not be opened in the summer. As regards the system of warming by low-pressure hot water as compared with steam, it was well to remember that the latter probably meant the employment of an engineer for working it in the winter, as it was too dangerous to entrust to the ordinary school-keeper with his multifarious duties about the school, whereas the former could be easily attended to by him. In his remarks on sanitary accommodation Mr. Buckland referred to automatic flushing. This meant troughs, which were pretty universally condemned by the faculty in these days. Besides, all towns had their sanitary by-laws, and he doubted if any at the present time would approve these, certainly not London; it was surprising news to him that in even a single case independent flushing "was not satisfactory and an automatic system had ultimately to be installed." It would be interesting to hear where this occurred. The reverse was his experience, and was the cause of constant disputes with borough councils in the case of old schools which were working satisfactorily. The general remarks touching lighting, desking, etc., were truisms which needed no comment, but he would like to place on record his opinion that the requirements of the Code as to the areas of central halls, viz., a minimum of 6 ft. per scholar in secondary schools, and a maximum of 4 ft. in elementary schools, was incomprehensible, especially considering that in a properly equipped secondary school there was a gymnasium and dining-room inaddition.

The Chairman then put the vote of thanks to the meeting and it was very heartily agreed to.

Mr. Buckland, in reply, said it would have taken too long to have covered all the points which Mr. Bailey seemed to think he should have covered. As to what Mr. Bailey said about the central hall having gone beyond the line of argument, that might be so, but it did not follow that school buildings were not being planned without a central hall, and in secondary schools he certainly did not think that the central hall had gone beyond the line of argument, and he found there was a growing opinion in favour of a hall, other than a *central* hall, for such schools. Mr. Bailey suggested that he expressed condemnation of the "Plenum" system, but he (the speaker) had not said a single word which expressed an opinion of his own in regard to the "Plenum" system. He expressed the opinions of others, which he had gathered in the course of his experience. He certainly had never found a school ventilated on the "Plenum" system, or any extract system, which reminded him of the Riviera. A room containing about sixty dirty children could hardly suggest that. Mr. Osborne Smith suggested that as the central halls of the Birmingham schools were surrounded by classrooms, that they suffered from the absence of light and warmth if the room faced north. But if the school were properly planned a great deal of borrowed sunlight was obtained and the place was very well lighted. He was inclined to agree with Mr. Osborne Smith as to ventilation of schools, and he thought it was a good thing if teachers and scholars could be got to prefer the fresh air coming in through open windows. But were they prepared to sacrifice everything to ventilation? In the Staffordshire type of plan a great deal had to be sacrificed, and the buildings were nothing like such good buildings from the educational point of view as they would have been if they were of the central-hall type. [Mr. Osborne Smith: That is not the alternative; there can be a modification.] What was proposed might not always be efficient, and at times it might give the children colds. The opinions of doctors were not always reliable, and a doctor of to-day contradicted the doctor of the past, and would find his views contradicted in turn. There were too many fads about, and the tendency was to believe all that the doctors said. He was inclined to attach very little importance to a fad of the hour.

The Chairman announced that the next meeting will be held on February 19, when Mr. A. Needham Wilson will read a paper on "The Press and Architecture."

The meeting then terminated.

## THE SOCIETY OF ARCHITECTS:

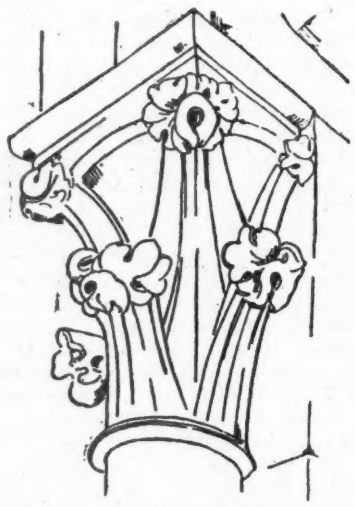
### DEVELOPMENT OF ROMANESQUE AND GOTHIC DETAIL ON THE CONTINENT.

AN ordinary meeting of the Society of Architects was held on Thursday last week at Staple Inn-buildings (south), Holborn, W.C., Mr. G. E. Bond, J.P., President, in the chair.

The minutes of the last meeting having been read and confirmed and some candidates for membership having been elected, Mr. G. A. T. Middleton delivered a lantern lecture on "The Development of Romanesque and Gothic Detail on the Continent."

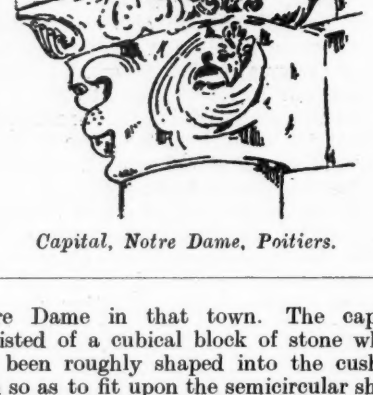
The President said he might refer to the fact that the first suggestion for the formation of the Society was made just twenty-five years ago, and that by a coincidence Mr. Middleton, who was to lecture that night, and at short notice, in place of another gentleman, was the first Secretary of the Society, and that he acted in that capacity for nine years.

The lecturer said that all that could be done in the time at their disposal was to indicate a few leading lines of thought, and the conclusions to which one who had travelled much with sketch-book and camera had been driven. It might be taken as an axiom that the Romanesque style developed almost entirely, if not entirely, in the districts which, some seven hundred years before the period now under consideration, had been under the dominion of Rome. There had been at an earlier period, and there were again in the XIth century, two principal trade routes throughout Europe, one of these lying along the Rhine Valley, while the other traversed the Riviera and the South of France. From each of these main arteries trade and culture spread like a fan over the land, until the intermingling of influences in Mid France and Northern France was so complete that they became well-nigh indistinguishable. Speaking generally — very generally—observations showed that the detail of this time throughout the whole Romanesque period, now remaining along the Rhenish route, was of a Roman type. Of mouldings there were scarcely any. A capital



*Capital, Soissons.*

from Soissons gave a fair idea of what might be expected to be found throughout the whole district in which the Roman influence was in predominance, having a certain amount of Byzantine feeling in the shape of the acanthus leaves. The work was essentially classic, with acanthus foliage and suggestions of volutes in the cap, and the use of all the ordinarily understood classic enrichments, debased but recognisable. In this district the carving was Roman; it was true carving, it was that in which, as a rule, the foliage projects well from the background. Along the Southern trade route, although it was a district where Roman remains must at that time have existed in innumerable quantities, to nearly, if not quite, the same extent as along the Rhine, the character was much more Byzantine. The surface of the stone which was carved was clearly discernible, the enrichments being obtained by sinking the background beneath it, and by the use of the drill, as in much of the Byzantine work; while the cushion capital, itself a Byzantine feature in its enriched form, was found rather than the Corinthianesque. This Byzantine stream of influence as it neared the coast and travelled northwards was subjected to another, an apparently Scandinavian influence, due, it might be supposed, to the fact that the coast line of Western Europe was invaded by the same northern pirates as overran England and founded the Anglo-Saxon race. The result was seen in perfection in Poitiers, as was indicated in one of the capitals from the richly carved west front of the church of



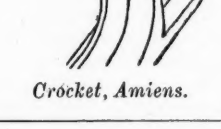
*Capital, Notre Dame, Poitiers.*

Notre Dame in that town. The capital consisted of a cubical block of stone which had been roughly shaped into the cushion form so as to fit upon the semicircular shaft, and had then been carved by cutting in the background so as to represent grotesque birds of an undoubtedly Scandinavian character, while the abacus above was enriched with a crude Byzantine interpretation of the anthemion. Further north, particularly in Normandy, the Scandinavian influence was even more apparent, the details being almost identical with those commonly found in England during the same Norman period, their origin being in many cases easy to trace back to the forms of twisted wirework or to embroidery. Detail of this description was, however, never found in connexion with what we know as Gothic architecture; but the Gothic foliage, as it occurred in France, appeared to have developed almost directly from the pseudo-Corinthian capital found in the western districts under Rhenish influence. At Soissons the acanthus was overshadowed by a broad leaf, and from this combination it was easy to recognise the source of the rich broad-leaved capital in very common use, as in the choir arcade of Lisieux Cathedral. The leaves were arranged in tiers one above another as in a Corinthian capital, curling over at their tips much in the same manner as do acanthus leaves in classic work, but without serration and more resembling the terminations of the fronds of the hart's-tongue fern.

At this date there was a general concession of opinion that the carvers, whether in England or on the Continent, were beginning to obtain their inspiration from nature. It was not so generally recognised that it was the spring foliage from which this inspiration was taken; yet it was undoubtedly the spring foliage which was copied at first. Examination of a large number of examples must drive any careful observer to the conclusion that this was the case. The first leaves were broad, certainly, but they were not fully developed leaves, as the curled-over tip indicates; and as the XIIIth century proceeded the leaf became more narrow and the tip developed to a half-open series of leaf buds known as the "Crochet" (or hook) capital. The English narrow rising stalk terminating with leaf buds under and overhanging bell was never seen; there was almost invariably an indication of Corinthianesque origin in the formal arrangement round the shallow bell cap, which was also of Corinthianesque type; but the fact that the foliage was natural and that of spring was incontestable, just as much as it was in England. Gradually, too, as time went on, the foliage opened, as it does in nature, when spring merged by slow and imperceptible degrees into summer. A certain formality of arrangement was still retained, as was shown in the small portion of a leaf capital from the

*Portion of Capital, Knights' Hall, Mont St. Michel.*

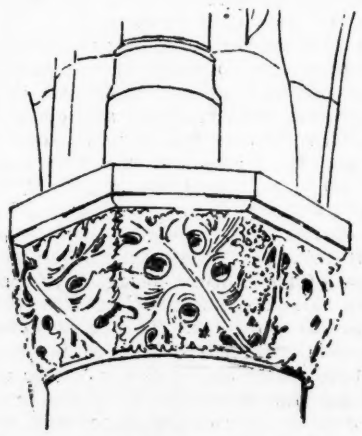
Knights' Hall at Mont Saint Michel, though in some of the grandest examples the foliage now occurred in the form of a scroll serving as a horizontal string. The use of foliage was, however, not exuberant as it was in England; except in crockets, of which a typical example was from the gable over the west door of



*Crocket, Amiens.*

Amiens Cathedral, projecting, to an extent which might be thought to jeopardise its stability, in the form of a broad leaf terminating in a closely clustered bud.

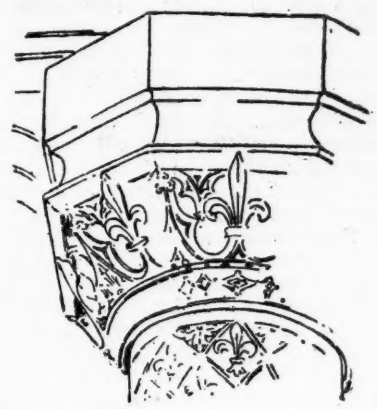
Strangely enough, as the XIIIth century merged into the XIVth (he said strangely, because it could hardly have been premeditated) the foliage became more and more like that of summer, until a perfect summer foliage was developed; as, for instance, in the capital from the apse of St. Alpin, Charlons-sur-Marne, which showed



*Capital, St. Alpin, Chalons-sur-Marne.*

vine leaves growing as a wreath round the capital, and young grapes among the leaves. The capital had entirely lost the bell form, and had reverted to that of the cushion, while, as in the earlier times, the carving no longer

stood out, but effect was obtained by incision of the background. As a general rule the foliage of this period was flat in effect in France; in England, while it also here represented summer at the same date, it was crisp



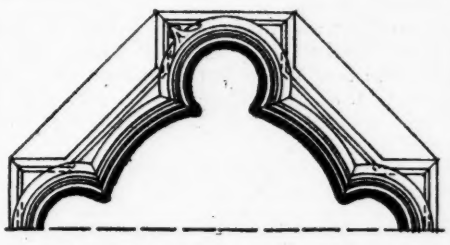
*Capital, Maison Historique, Beauvais.*

and fully undercut. Another and somewhat rare example of the same period was illustrated from the Maison Historique at Beauvais, the capital in this instance, again of cushion form, being carved to represent a coronet of *fleurs-de-lis*.

It might be remarked that of this time there was no great amount of Gothic detail to be found in France, nor, in fact, much Gothic building either, for it would be remembered that the country was overrun during the early part of the XIVth century with English troops, who ravaged and pillaged wherever they went, preventing all attempt at building operations, and that immediately on their departure the "Black death" came, leaving utter ruin in its train. It was not to be wondered at, therefore, that when it was desired to enrich the porches of Bourges, towards the end of the XIVth century, the Portuguese were called in to do the work, with the effect of extraordinary cusping and the introduction of a large amount of small enrichment, both of foliage and figures.

The lecturer having referred to the fact that during the whole of the XIIIth and XIVth centuries figure carving and sculpture were developed in France as nowhere else, with extraordinary breadth and dignity and extreme simplicity, said that during all this period it might be asked what was happening to the mouldings. The answer was that they changed scarcely at all, in this way differing widely from those to which we were accustomed in England. Romanesque work, where based upon the Roman, was perfectly plain, the arches, in receding planes, being usually rectangular in sectional outline, enriched with some carving possibly, but rarely moulded at all; while in Western France, and subsequently throughout the whole district under consideration, the angle roll and the slight surface hollow, which were associated in England with Norman work, became common, if not universal. The strange thing was that this extreme simplicity was retained throughout the whole of the XIIIth century, being only modified on the lines of our Early English mouldings in rare instances, when the English influence could generally be traced, as in the cloisters of Mont St. Michel. The more ordinary form was that shown by the section through one of the wheel windows at the west end of Amiens Cathedral—the heads, of course, being exceptional and only occurring, at the bottom of the circle, as waterspouts in order to let the water escape which would otherwise hang in the hollows behind the beads. It was clear that this stood very little in advance of what we should call Norman work.

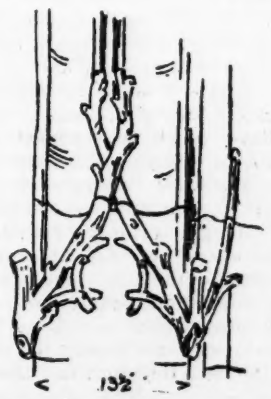
Recognising this, that what we call Gothic mouldings were in the XIIIth century not fashionable on the Continent, it was not astonishing to find that the development in the XIVth century was only such as would naturally follow out of the Romanesque angle roll, as exemplified in the jamb mouldings of the west door of St. Martin at Laon, which showed what might be considered as a typical arrangement of angle rolls, with minor rolls upon the main faces of each ring, and hollows between which were in no sense undercut, and had only the slightest indication of free treatment. It might be thrown out as a suggestion that it was largely due to the simplicity of the mouldings that we had such exceedingly dignified pointed work in France in comparison with the delicately beautiful English arcades. So far as change took place, its limits might be recognised in the plans of the nave piers of Rheims Cathedral,



*Half Plan of Nave Piers, Rheims.*

most of which were built in the XIIIth century, though the two westernmost belong to the XIVth. In the XVth century, when English mouldings were flattening and deteriorating, those of France developed in an entirely fresh and Gothic spirit of great freedom; with long and narrow bowtells projecting in many directions apparently without rule; with deep hollows, sometimes narrow and sometimes wide, and with a general avoidance of all symmetry. The effect was wiry, but it was frequently extremely beautiful, the narrow mouldings being allowed to interpenetrate as circumstances might require, and each having its own independent base, which died into a greater base belonging to a group.

The foliage suddenly lost the flatness of the period before the English invasion, and took on the clean undercut character and crispness of that of England in the XIVth century, giving to it, however, the effect of autumn leaves instead of those of summertime. Nothing could exceed the brilliance both of execution and design of such work as the thistle scroll round the north door of the west front of Tours Cathedral—and a large amount of this sort of thing was to be found. The leaves were unquestionably autumnal in character, fruit and nuts growing among the leaves, while the stem was knotted and gnarled. There was much of this late work at Abbeville, at the well-known church of St. Maclou, at Rouen, and in the south doorway of Beauvais Cathedral, where an



*Buttress Enrichment, Beauvais.*

example occurred of the bare boughs without foliage being utilised as cusps, the leaves having fallen entirely away, and the indication being that the winter of Gothic architecture had arrived.

On the motion of Mr. E. Harvey Piper, seconded by Mr. E. J. Partridge, and supported by Messrs. A. Bonner and Ellis Marsland, a hearty vote of thanks was accorded to Mr. Middleton for his lecture.

Mr. Marsland said he could not quite follow Mr. Middleton in his spring, summer, autumn, and winter ideas, and he thought those ideas were open to question.

Mr. Middleton said those ideas were not his own, though he believed in them, and he admitted that they were not recognised by everyone.

The proceedings then terminated.

## ARCHITECTURAL EDUCATION.*

IN his paper on this subject Dr. Honeyman first referred to the works in Glasgow in the earlier half of last century, and also — more particularly — to those designed by architects who were in practice there when he commenced business himself more than fifty years ago. He submitted that they compared favourably with the work of their successors, although they had to depend for their professional training on the old-fashioned apprenticeship, when masters still recognised the fact that an indenture imposed certain obligations on them as well as on their pupils. In those old days, although masters were comparatively few, apprentices were also scarce; now competent and conscientious masters were scarce and pupils were superabundant. There was no doubt that apprenticeship had outlived its day, and ought, along with premiums, to be abolished. It had become a mere farce, and, in offices where the staff was large, little better than an economical method of providing principal draughtsmen with fags. Hence their concern about a substitute. He thought it would be difficult to improve on the course proposed by the Liverpool School of Architecture, or on that recommended by the Educational Board of the Royal Institute of British Architects. The Glasgow School of Architecture and several others had adopted similar courses of study, but the weak point, he thought, in the Liverpool scheme was the too intimate association of the school with the University. He thought they could not expect Universities generally to amalgamate in such a manner with schools; they should maintain their distinctive character and help with the scientific side of education only. Glasgow had shown us how this may be done by recognising the value of the teaching in the evening classes of the Technical College, and allowing them to be taken into account *pro tanto* in its course for the B.Sc. degree. This, he thought, was about all they could expect, and Universities should have nothing to do with art, or anything which could not be made a subject of examination on clearly definite and identical lines in the case of all co-operating Universities, so that their degrees might all be rightly regarded as of equal value.

He thought that obligatory examinations were only required up to a certain point, to prove the acquisition of those branches of science now deemed essential for an architect. At that point all would be on an equality, whether members of the Institute or not. The point he referred to was this: Having passed the Intermediate Examination, or what the Institute had agreed to accept as its equivalent, or having taken a University degree. From these no further evidence of fitness to practise should be required. Of course, it would remain for the Institute and other associations to impose any special conditions they pleased to qualify for admission to their membership, but he thought such requirement should partake more of a voluntary character than hitherto. Uniformity in art examinations would have a

* Abstract of a paper by Dr. John Honeyman, R.S.A., read at a meeting of the Architectural Section of the Royal Glasgow Philosophical Society on February 8, 1909.

prejudicial effect. He thought it hardly possible to specify hard and fast rules for examinations in art subjects. In the Institute's Final Examination each candidate for membership should be left free to define the scope of his examination, and encouraged to "profess" as much as he chose, so that the examiners should get, not a mere knowledge of his qualifications up to a certain point, but, it might be, a long way beyond any point they would, according to the usual course, have thought of prescribing. This, he thought, would stimulate emulation and impart elasticity to the final examinations.

Speaking generally, his view was that a broad line of distinction should be drawn between the scientific and the artistic sides of the architectural student's education. He would advise that the Institute's Educational Board should define exactly to what point in the Civil Engineer's course the architectural student should go, and a universally applicable and rigid examination would then test his knowledge. But the test of his artistic ability should be somewhat variable and elastic. They would observe that his intention was to warn rather than to advise. They were probably at one in the opinion that architects in future should have more systematic scientific training than hitherto. Such training would only conduce to freedom in designing and would do no harm; although all had reached exactly the same standard. But they could not speak of the same standard in art training in the same way. For example, if they supposed a hundred young men finishing their course in one of our excellent schools of architecture on equal terms, and the same number (having identical scientific attainments) finishing their course in the old-fashioned apprenticeship way—from which lot would they expect the best architecture? From the second lot, he had no hesitation in predicting. It might be objected that their taste might be warped by mannerisms, but whether would it be better to have a hundred architects with a hundred different mannerisms which would be modified or obliterated according to individual idiosyncrasies, or, in the other case, only one mannerism, but that indelibly stamped on each of the hundred? The difficulties he had referred to in the way of returning to the old apprenticeship system were not insuperable. Nevertheless, the scholastic was destined to be the method of the future. He had no difficulty in predicting that this would result in the production of a great many superfluous architects and a corresponding increase in the intensity of the scramble for employment. What the effect on our XXth-century architecture would be, he must leave Time to tell.

## "MON'LITHCRETE" FLOOR TESTS.

A NEW variety of floor introduced by the Fawcett Construction Company consists of a monolithic concrete slab in which are embedded rolled steel joists of special form. Being intended mainly for resistance to tensile stresses the joists are rolled with the top flange only two-thirds the sectional area of the bottom flange, and after having been rolled, large rhomboidal-shaped openings are cut in the web, thus leaving diagonal tension bars, except near the ends of the joists, where the web is left solid for resistance to shear.

One effect is that the concrete passes through the webs of the joists and so can be monolithic from side to side as well as from end to end of the floor slab. It is also claimed by the makers that the local loads are distributed over a wide area and that the concrete is held by the web bars in such manner that it cannot expand along the span of the joists. The concrete is further restrained by transverse twisted bars laid in the web openings, these bars also taking part of the tensile stresses developed.

On February 6 a test was commenced at the works of the makers in Tunnel-avenue, East Greenwich, upon a slab with the clear span of 16 ft., the width of 2 ft. 6 in., and the thickness of 7½ in., containing two 6 in. by 3 in. by 2 in. joists of the type described above. The original weight of the joists was 12 lb. per foot run, reduced to 7·3 lb. per foot run by cutting openings in the web. The joists were placed 1 ft. 6 in. apart centre to centre, the concrete being 1½ in. thick below the bottom flange and flush with the top flange of each joist. The transverse ties consisted of ¾ in. by $\frac{1}{16}$ in. twisted steel strip, one tie in each rhomboidal opening, and situated at the distance of 2½ in. above the bottom of the concrete.

The embedding concrete was composed of Portland cement and clean broken brick and tile in the proportions of 1 to 6, and was of the age of five weeks at the commencement of the test.

The floor was loaded with ballast to the extent nearly of 8½ cwt. per square foot, with the result that the deflection was less than 1 in. at the middle of the span, slight cracks appearing on the under surface of the concrete.

With the object of determining the ultimate strength of the construction arrangements were made for a test to destruction on February 13, when the load was increased up to 14 cwt. per square foot, but without causing failure. The maximum deflection under the load was only 2¼ in., and three days later the removal of the ballast permitted the floor to rise to the extent of ⅞ in., leaving 1⅜ in. as the net permanent deformation.

The general results must certainly be considered as highly satisfactory and as substantiating the claims put forward on behalf of this method of floor construction in respect of strength and rigidity.

## THE CARPENTERS' COMPANY LECTURES:

### THE INFLUENCE OF MATERIALS ON DESIGN.

THE fifth of the series of thirteen lectures on "Arts Connected with Building," arranged by the Carpenters' Company, was delivered on Wednesday last week in Carpenters' Hall, London Wall, E.C., by Mr. F. W. Troup, F.R.I.B.A., who gave the second of the three lectures arranged for on woodwork, his subject being "The Influence of Materials on Design."

The chair was occupied by Mr. Percy Preston, Past-Master, who, in introducing the lecturer, said he knew from experience how great was the influence of materials in the construction of carriages, and the influence of wood, etc., had much to do with architectural design and with furniture.

Mr. Troup, whose remarks were illustrated by some excellent lantern views of Swiss chalets and French and English houses, after some preliminary remarks, said he should not confine his remarks entirely to woodwork. The two methods of construction of timber houses—those in our own country, in what was called "half-timber" construction, and those in Norway, Switzerland, and other northern countries, in pine, and, of course, usually "whole timber," *i.e.*, built of solid logs—were absolutely different, and had naturally developed entirely different designs, and modes of ornamenting and dealing with the materials decoratively. They showed, in fact, about as complete and perfect an example as it was possible to select (outside of altogether different materials) of the influence of material on design. They must understand the term "design" to cover the whole construction as well as its ornamental treatment—not merely the conscious work of a modern designer, but the natural dsvelopment—the resultant of several forces, as a physicist would put it, including material, climate, and national idiosyncrasies. In the case of the Swiss loghouse the builder had abundant timber, and his trees had straight stems. He built his wall like masonry, with this difference, that his blocks ran, perhaps, the full length of the house. Each tree was adzed flat and parallel on the top and bottom sides, and was laid on the one below on a thin bedding of dry moss, which took the place of mortar. Sometimes the remaining two sides were also cut off, giving a smooth wall of timber inside and out, but often these were left rough. At the corners of the building the logs were notched into one another where they intersected. In the roof we saw at once how material influenced design. Pinewood used for walls in this way was required to last, and in order to prolong its life it must be protected as much as possible from soaking rains and snow. Hence we had the familiar projecting eaves of the Swiss chalets, with their accompanying brackets, the latter giving endless opportunity for the workman's fancy in these necessary supports, and the former yielding a pleasant and grateful shadow in the heat of summer. The slope of the roof was a flat one, no attempt being made to throw off the snow in winter, for the snow kept the house warm and was encouraged to keep there till the return of the warmth outside to melt it. There were very seldom valleys in the roof, such as we were accustomed to in our steeper roofs, for these would cause trouble with the melting snow; so the roof was one simple span covering a square house, and its ample projection threw all drip well away from the walls. The low-pitched roof enabled the roofing slabs or shingles to be held down and kept in place by large stones.

In the case of the French or English half-timber house we had a different tree, harder wood, more durable, and, generally speaking, not so straight in the log as the pine, nor quite so abundant. A house could be built, no doubt, in oak logs just as in pine, but the development here was quite different. Only a sill was laid in that fashion, and on that was raised a framework morticed and tenoned together, perfectly suited to size and natural shapes of timbers from the trunk and limbs of an oak tree. Nothing was wasted. Braces were required to prevent the framework sheering over in its sockets, and those were formed of the curved branches, thus enabling the carpenter to get his tenons formed of end grain, both in the sill it rose from and in the corner post it supported. Here, as in the Swiss chalet, it was well to protect from the weather both timber and walls, so we frequently met the projecting upper story, formed by shooting out the floor-joists beyond the walls on which they rested. When, as was sometimes done, the floors were projected on both the end and front of a building, we got a wonderful construction with a diagonal beam, into which both sets of joists were tenoned. The end of this beam carried the corner post of the story over, and was supported by an oak knee, sometimes beautifully carved and moulded, formed by cutting down a tree with a huge root that, inverted, formed a perfect bracket as sound as if it were made by an engineer of to-day and riveted up out of steel angles. It was worthy of note that these projecting walls in half-timber houses, when skilfully done, actually strengthened the joisting—or, in other words, enabled a lighter joist to be used than if they had no "tail weight" on their projecting ends. Beyond these main lines of construction, which differed so essentially from those of the pine-built chalets, there was, of course, the development of brackets, carvings, mouldings, and ornamental shapes, all varying from the corresponding ornaments and decorations on the soft-wood buildings.

He had recently had to make some repairs and alterations to a beautiful example of a half-timber house in Norfolk. It was entirely framed of oak on a low brick plinth about 15 in. high, and, curiously enough, the timbers showed inside the house, but outside not at all. It had been framed together in its main constructional lines with complete disregard to the chief windows, whose frames were simply clapped on outside in the positions required for the rooms, and for external

appearance. The back windows were fitted in to suit the construction, and were correspondingly more charming and appropriate in every way. But everywhere, without exception, where a beam carrying the floors rested on a post in the framework of the wall, that post had been selected with a projecting bracket, probably formed of a root or branch, so as to carry the end of the beam without its displacing the horizontal timber of the wall framework. The filling-in between the oak timbers was done by means of ash poles about as thick as one's wrist wedged in upright between the horizontal timbers and secured there, and thin laths were woven in to give a key for the clay daub which formed the solid part of the filling-in. This wattle-and-daub varied in different districts, but it was the usual method, and the clay was scratched on the surface for a key, and then sometimes coated with the merest skin of lime plaster, as better able than clay to resist rain and wind. Clay, however, had its own use, and he doubted if anything better could be devised as a filling-in material for timber-framed houses, and he doubted also if the brick filling-in of many old examples was not really a much later alteration—just as half the cottages in Norfolk that appeared to be brick were really built of clay-lumps faced afterwards (many quite recently) with 4½ in. of brickwork. The trouble with brick filling-in was the joint between the oak and brick. With new oak a watertight joint was impossible—with clay, in place of brick, the matter was quite different, because as soon as wet entered the joint the clay swells, and shut it up, and the more it entered the more it swells. This Norfolk house, for some reason, had had the oak timbers all hacked over outside to form a key for plaster, and the whole surface was plastered over, oak and panels alike, forming a plastered house. The rest of the work, floors and roof and stairs, were splendidly carried out, though it was a house of no great pretensions architecturally. The floors were solid, and were formed in this way: joists 4 in. by 3½ in. were laid flatwise on the main beams and were covered with a layer of reeds about an inch in thickness; and on this again was laid wide oak floorboards nailed to the joists through the reeds. This being done, the underside of the reeds was plastered between the joists, giving a good, sound-proof floor and yet barely 3 in. thick. In Leicestershire and other districts where good lime was to be had, many of the old floors were formed altogether of plaster. In place of the floorboards being laid on the layer of reeds, 2 in. or 3 in. of well-tempered plaster was spread and thoroughly floated over and brought to a smooth surface. This got almost as hard as cement concrete, and the undersurface of the reeds was plastered to form the ceiling as before. Talk about modern concrete floors—why, there was a good solid floor three times as sound-proof as ferro-concrete, all the construction showing not more than 4 in. thick, which had been done for centuries, and they could order the plaster for a new one to-morrow if they liked.

The lecturer, in speaking of the classification of materials, referred to the proposal to disperse the Indian collection at South Kensington Museum, and to distribute the objects among the general collection there under the heading of wood, iron, pottery, and so forth. No words strong enough could be used in condemning what was virtually a prostitution of a superb collection of representative Eastern art to what would soon be regarded as a passing fad or whim to classify the exhibits according to material. The art of a nation was one throughout all materials—each craft reacted upon the other and was influenced by the other. To compare individual objects from different countries was interesting and useful, but to break up complete collections of all the crafts was short-sighted, and could be justified neither by theories nor for the convenience of lazy students.

There was another influence that affected design almost as powerfully as material, and that was climate. At one time this influence might have been overlooked, because, no matter where materials came from, they were used by workmen accustomed to local conditions, and following local traditions. At the present day not only had we furniture, all sorts of utensils, and what not made in one country and sent to another, but we sent out workmen to distant countries and even teachers and instructors to show the ignorant natives how things really ought to be made, and how to work according to the holy scripture of the Text-book, and so reach salvation by passing an examination.

Having referred to the treatment of woodwork in warm and dry climates of the East, and the influence and use of tools, including machinery, the lecturer said that when in doubt the designer could not do better than refer to the old examples in our museums and unrestored buildings, and, generally speaking, they were safer to go to the earlier examples. But they must discriminate, and very carefully too. They must study the construction first, and copy the form only, if it came naturally from their own requirements. By "construction," they must understand the whole treatment of the material—how it was put together, and, if possible, the tools that had been used; and bear in mind the tools that were available now, or for their work; whether machinery was likely to be used, or whether their work would be executed by craftsmen. If it were possible, and if they were wise, they would take the craftsman into their confidence, and they might be able to learn something of him, and, at the least, they would know what he was equal to, and perhaps find it advisable to modify the design to suit his capabilities, or, better still, leave something for him to modify as the work proceeded. They might be sure of this, that if the young architect did but learn the rudiments of one craft or trade, he would find that it gave him an unexpected insight, a kind of instinctive knowledge of the others, that would surprise him and reward him for his labour. If the opportunity offered, or could be seized, to learn a craft, they should take it without hesitation. In designing, above all things they should avoid being clever merely for the sake of effect. Cleverness was not art—more often it was mere licence and a want of restraint. Their best work was not that part of it which they most admired themselves, and they would be safe ruthlessly to cut out that part from their design. Design was so completely governed by the material that it was really little more than the resultant of the two main forces—the inert material with all its possiblities on the one hand, and, on the other, the aggressive tools of the craftsman with his infinite capabilities for good or evil—these two forces, the one passive, the other active, brought together by the craftsman, and guided partly by his knowledge and experience of what was possible and what was best, and partly by his skill and practice in the use of the tools themselves. Those produced the main lines, they effected the assembly or bringing together, the building up of the whole. That which remained for fancy and imagination to play with was comparatively unimportant. There was, indeed, a right and a wrong way of letting loose the fancy in carving, painting, or whatever form of gaiety the craftsman allowed himself to indulge in, and the right way was always subservient. As soon as indulgence in the fantastic, the *tour de force*, or attempt to imitate other materials began to get the upper hand, so surely did "debased art" become the true and only description of the work.

On the motion of the Chairman, who referred to the examples of woodwork in South Kensington Museum, and to the influence of money in the selection of material, and so on design, a vote of thanks was accorded to the lecturer, and the proceedings terminated.

## ARCHITECTS' TECHNICAL BUREAU.

### APPROVED MATERIALS AND FITTINGS DEPARTMENT.

THE following communication has been received from the Bureau:—

The next meeting for the consideration of building specialities, fittings, etc., will be held on Thursday, March 4, at the Bureau Offices. Craftsmen and manufacturers desiring to bring their designs or specialities to the notice of the Selection Committee should apply to the Secretary at the Offices, 24, Hart-street, Bloomsbury, W.C., without delay. No charge is made for submitting subjects for approval, and for full particulars of this department the reader is referred to the previous issue of the *Builder*, page 176.

Manufacturers or craftsmen whose goods are approved as being of good design or of a useful and practical character are required to supply the Bureau with circulars or illustrations prepared to the standard form and to defray the equivalent of cost of 1d. postage to the architect subscribers. Every subscriber is provided with classified filing folios for the reception of these approved subjects, the principle being to enable architects who are subscribers to the Bureau to have in a concise and handy form for reference in their offices designs of fittings or building materials that have been considered by a committee of architects to be of merit and recognised accordingly.

Building materials or specialities in any trade may be submitted for the approval of the Committee, also fittings in any of the following or other lines:—Electric-light fittings, gas fittings, leaded lights, stained-glass, grates, mantels and interiors, door and window furniture, art metal work, etc.

The room for the exhibits will be available on the day prior to the meeting.

Particulars of the specialities approved at the last meeting, held on January 29, will be dispatched to the architect subscribers during this week.

## Master Builders' Associations, etc.

### PORTSMOUTH MASTER BUILDERS.

The thirty-sixth annual meeting of the Portsmouth and District Master Builders' and Building Trades Association was held at the Sussex Hotel an the 9th inst. Mr. M. Coltherup, the retiring President, occupied the chair at the commencement, and presided over a large attendance. Among those present were Messrs. G. J. Davis, Jas. Crockerell, G. R. Chamberlain, S. Salter, A. E. Porter, T.C., W. W. Evans, J. W. Perkins, T.C., J. Harding, W. P. Wigmore, Frank Aylen, J. D. McCarthy, T. L. Norman, C. F. Brown, W. H. Sabine, J. Durrant, C. M. Dash, John Hunt (Gosport), and Frank B. Roskell (Secretary).

The annual report and balance-sheet, which were very satisfactory, having been received and adopted, Mr. Chamberlain, in proposing the election of Mr. Davis as President for the ensuing year, spoke in high terms of that gentleman's fitness to occupy the position.—Mr. Evans seconded the resolution, which was carried unanimously.—Mr. Davis, on taking the chair, was received with applause. In acknowledging his election as President, he briefly thanked the members for the honour conferred upon him, and promised to use his best endeavours at all times for the welfare of the Association.—A hearty vote of thanks was then accorded to the retiring President, who expressed his willingness to assist his successor in every way in his power, and thanked the Committee and members for their kind co-operation during his term of office.

Mr. J. Harding and A. E. Porter, T.C., were then unanimously elected as senior and junior Vice-Presidents respectively, and Mr. J. Crockerell as Treasurer. The following were elected on the Committee:—Messrs. M. Coltherup, S. Salter, G. R. Chamberlain, W. J. Light, T.C., W. W. Evans, W. P. Wigmore, J. W. Perkins, T.C., S. E Sprigings, T.C., J. Durrant, Frank Aylen, W. H. Sabine, and C. M. Dash (Gosport). A vote of thanks to the retiring auditors having been passed, Messrs. W. A. Carline and S. L. Norman were unanimously elected to act in that capacity for the ensuing year.

Several matters relative to the building trade were discussed, after which the meeting closed with a hearty vote of thanks to the President.

THE BUILDER

FEBRUARY 20, 1909.

## TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to "THE PUBLISHER," and *not* to the Editor.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

N.B.—Illustrations of the First Premiated Design in any important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

## TERMS OF SUBSCRIPTION.

"THE BUILDER" (Published Weekly) is supplied DIRECT from the Office to residents in any part of the United Kingdom at the prepaid rate of 19s. per annum, with delivery *by Friday Morning's Post* in London and its suburbs.

To Canada, post-free, 21s. 8d. per annum; and to all parts of Europe, America, Australia, New Zealand, India, China, Ceylon, etc., 26s. per annum.

Remittances (payable to J. MORGAN) should be addressed to The Publisher of "THE BUILDER," 4, Catherine-street, W.C.

## MEETINGS.

FRIDAY, FEBRUARY 19.

*London Topographical Society.*—The tenth annual meeting will be held in the Lecture Theatre, Burlington-gardens. An exhibition of London prints, maps, and views from 4 till 5 p.m. The Earl of Rosebery, K.G., will deliver the annual address at 5 p.m.

*Institution of Civil Engineers.*—Dr. W. C. Unwin, F.R.S., on "Standardisation in Engineering Practice." 8 p.m.

*The Architectural Association.*—Mr A. Needham Wilson on "The Press and Architecture." 7.30 p.m.

*The Institution of Mechanical Engineers.*—Sixty-second annual general meeting. (1) The annual report of the Council will be presented; (2) the results of the ballot for the annual election of the President, Vice-Presidents, and Members of Council will be announced; (3) award of the Water Arbitration Prize to Mr. John Don, A.M.I.Mech.E.; (4) the prizes awarded by the Council for the best papers read by graduates during the session 1907-08 will be presented to Mr. C. W. Davson and Mr. A. MacKinnon; (5) paper to be further discussed, "The Filtration and Purification of Water for Public Supply," by Mr. John Don. 8 p.m.

*Birmingham Architectural Association.*—Mr. F. T. Baggallay on "Roman Architecture."

MONDAY, FEBRUARY 22.

*Royal Society of Arts (Cantor Lectures).*—Mr. Leon Gaster on "Modern Methods of Artificial Illumination."—II. 8 p.m.

*Regent-street Polytechnic Institute.*—Mr. A. G. H. Thatcher on "English Scaffolding."

*Royal Academy (Lectures on Sculpture).*—Mr. W. R. Colton, A.R.A., on "Two Great Sculptors of Modern Times." 4 p.m.

*University of London (South Kensington, S.W.).*—Mr. Banister Fletcher on "Famous Elizabethan Mansions," with lantern illustrations. 8 p.m.

*The Surveyors' Institution.*—Mr. M. C. Duchesne on "Practical English Estate Forestry." 5 p.m.

*Royal Sanitary Institute (Lectures on Sanitary Science).*—Dr. E. J. Steegmann on "Physics, Chemistry, Meteorology."—I. 7 p.m.

TUESDAY, FEBRUARY 23.

*The Surveyors' Institution.*—The annual dinner will be held at the Whitehall Rooms, Hôtel Métropole. 6.30 p.m. for 7 p.m.

*University of London (South Kensington, S.W.).*—Mr. Percival Gaskell, R.B.A., on "French Painters: VII. The Classical School. 3 p.m. and 8 p.m.

*Institution of Civil Engineers.*—(1) Paper to be further discussed, "The Design of Marine Steam-Turbines," by Mr. S. J. Reed. (2) Time permitting, Mr. Magnus Mowat on "Some Recent Grain-Handling and Storing Appliances at the Millwall Docks." 8 p.m.

WEDNESDAY, FEBRUARY 24.

*Carpenters' Company, London-wall (Lectures on Arts connected with Building).*—Mr. C. F. A. Voysey on "Ideas in Things." 7.30 p.m.

*London Master Builders' Association.*—Annual dinner, De Keyser's Hotel, Victoria embankment, E.C. 6.30 p.m.

*Royal Sanitary Institute (Lectures on Sanitary Science).*—Dr. E. J. Steegmann on "Physics, Chemistry, Meteorology."—II. 7 p.m.

THURSDAY, FEBRUARY 25.

*Carpenters' Hall Lectures.*—Professor Beresford Pite on "Design and Craft in English Woodwork." Mr. T. G. Jackson, R.A., will preside. 8 p.m.

*Royal Academy (Lectures on Sculpture).*—Mr. W. R. Colton, A.R.A., on "Two Great Sculptors of Olden Times." 4 p.m.

*Leicester and Leicestershire Society of Architects.*—Mr. S. P. Pick on "Impressions of Vienna and the Architectural Congress." 8 p.m.

*Institution of Electrical Engineers.*—Adjourned discussion on paper by Messrs. L. Andrews and R. Porter on "The Use of Large Gas Engines for Generating Power." 8 p.m.

*Royal Society of Arts (Indian Section).*—Mr. A. A. Macdonell, M.A., Boden Professor of Sanskrit, University of Oxford, on "The Bhuddist and Hindu Architecture of India." 4.30 p.m.

*Royal Sanitary Institute (Lectures on Sanitary Science).*—Dr. E. J. Steegmann on "Physics, Chemistry, Meteorology."—III. 7 p.m.

FRIDAY, FEBRUARY 26.

*The Architectural Association Debating Society.*—Paper by Messrs. H. P. G. Maule and G. H. Jenkins, entitled, "Is the Present System of Architectural Education in England Ideal?"

*Institution of Civil Engineers.*—Dr. W. C. Unwin, F.R.S., on "Standardisation in Engineering Practice." 8 p.m.

*Glasgow Architectural Craftsmen's Society.*—Mr. T. G. Gilmour on "A Tour through Somersetshire." 8 p.m.

*Royal Sanitary Institute (Lectures on Sanitary Science).*—Dr. E. J. Steegmann on "Physics, Chemistry, Meteorology."—IV. 7 p.m.

SATURDAY, FEBRUARY 27.

*Builders' Foremen and Clerks of Works' Institution.*—Annual dinner, King's Hall, Holborn Restaurant. 5.30 for 6 p.m. (Mr. F. L. Dove to preside.)

*The Royal Institution.*—Professor Sir J. J. Thomson, M.A., on "Properties of Matter."—I. 3 p.m.

*Architectural Association.*—Fourth spring visit, to the National Society's Training College, corner of Hillfield-road and West End-lane, West Hampstead. 2 p.m. A visit will afterwards be paid to the London County Council Board School at New End, Hampstead. 3.30 p.m.

## Fifty Years Ago.

FROM THE *Builder* OF FEBRUARY 19, 1859.

### THE ARCHITECTURAL EXHIBITION.

THE many friends of the Exhibition will rejoice at the success which attends each effort that is made for its advancement; and as it will now take a stand in the very first rank with similar societies, it is more than ever important that members of the profession should be fully impressed with the duty incumbent upon them not to be wanting in the most earnest endeavours to make the Exhibition all that its most sanguine supporters could ever have expected it to become, so that it may be found worthy of its position, and of the public support which it ventures to demand.

There, perhaps, never was a time when the art was in a more healthy and progressive condition than at present—when it had a more devoted and energetic band of followers—when it was so well and so rightly understood by those who are the leaders in its practice; it wants, then, merely that *will*, that small amount of attention and self-denial, which all may bestow, to give to the Architectural Exhibition a character of which the nation may be proud. Away with all excuses: the time or the cost of making a presentable drawing, so that the ordinary observer or critic may understand the subject, is not worth a thought. Let architects, then, show themselves worthy of the opportunity that is provided for them.

*** It is melancholy to reflect that, after all this enthusiasm, the Architectural Exhibition entirely collapsed, to be superseded by the inadequate room at the Royal Academy. Is there no possibility of reviving it?—ED.

## Illustrations.

### ROYAL INSURANCE BUILDINGS, PICCADILLY.

THE illustration, from a photograph taken specially for the *Builder*, shows the remarkably novel and original building which has been erected, from the designs of Mr. J. Belcher, R.A., at the corner of Piccadilly and St. James's-street.

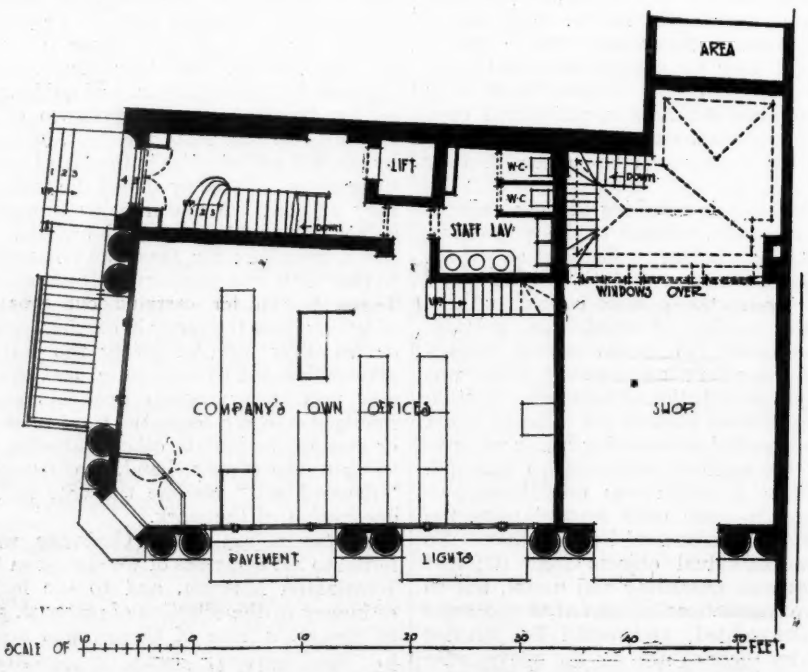
A plan of the building is appended; we were promised a description by the architect, but up to the time of going to press it has not arrived.

That we are altogether in sympathy with the architectural design we cannot say. The curious blocks of masonry which seem hung on to the building between the first floor windows, with the cylindrical wreaths pendant from them, seem to have no logical meaning; and the statues would surely have been more appropriately placed in the niches below, which appear as if intended for sculpture, than in the places to which they seem to have climbed.

There is a great deal of admirable detail in the building; the ironwork, simple and massive in character, is especially good; and whatever may be thought of some of what we may be allowed to call the eccentricities of the design, it is at all events a building which it is impossible to pass by with indifference—and that is more than can be said of many new buildings in London.

### DESIGN FOR LANDING FORMING AN APPROACH TO A ROYAL PALACE.

THESE illustrations form the most important portion of the set of drawings for which the Grissell Gold Medal was awarded by the Institute to their author, Mr. Douglas W. Day, of Leicester.




*Royal Insurance Buildings. Plan.*

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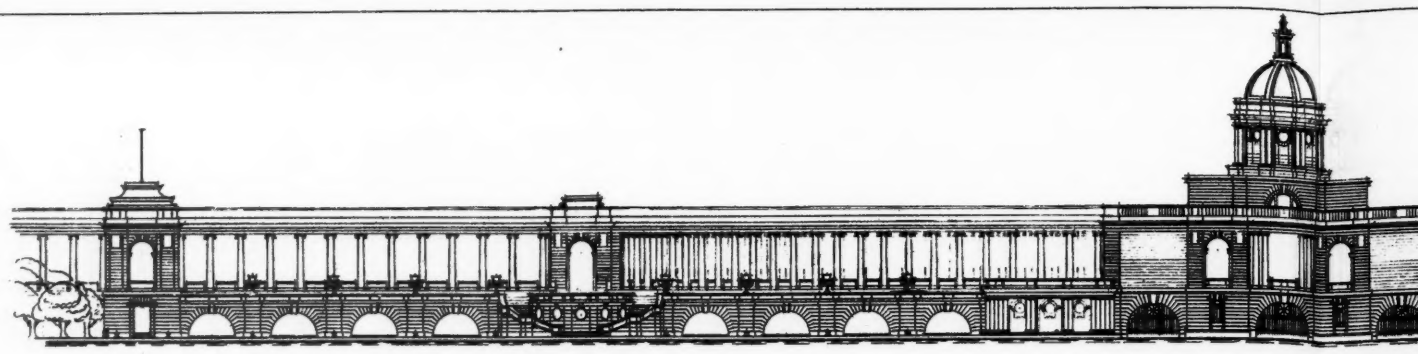
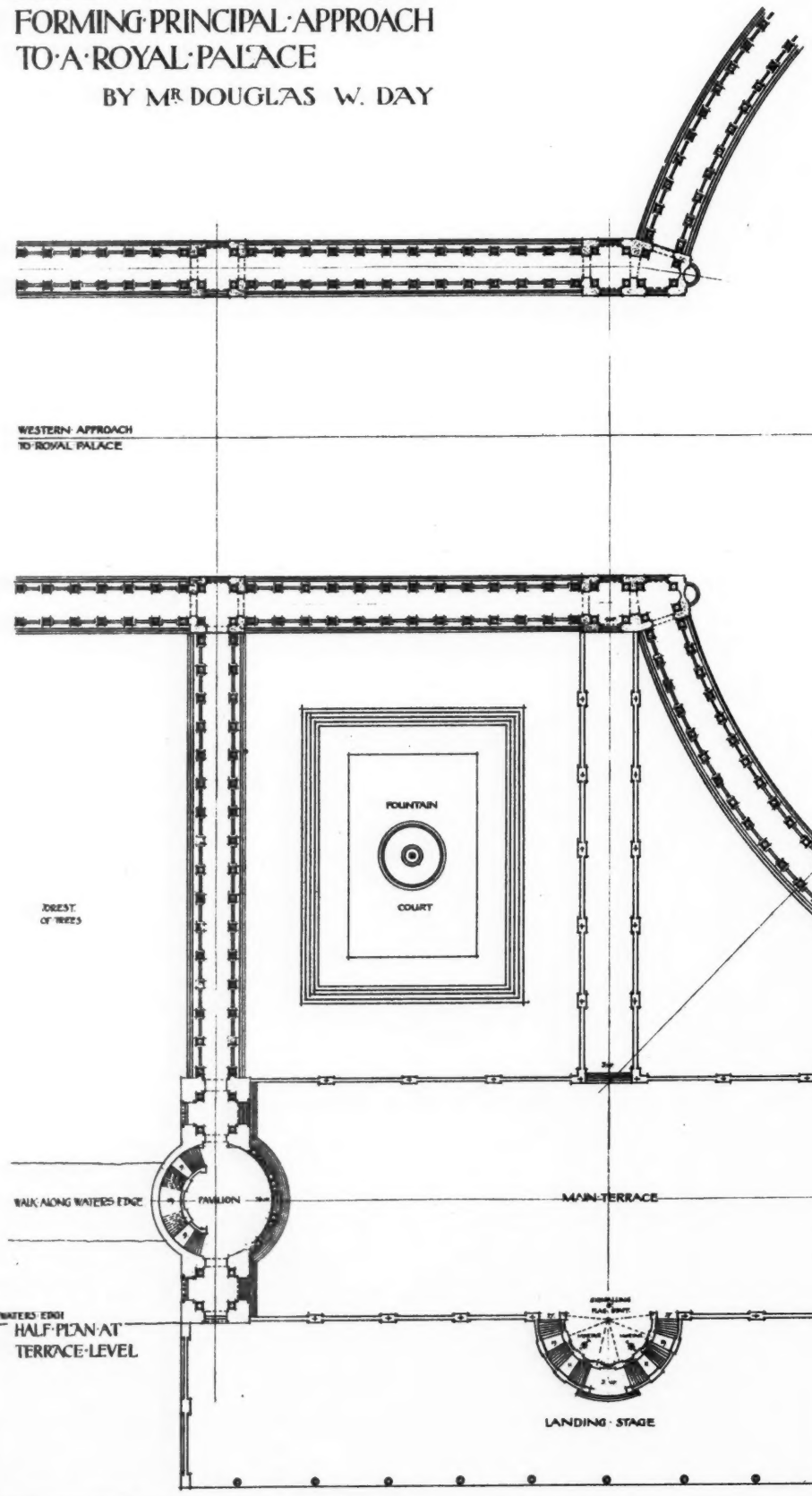
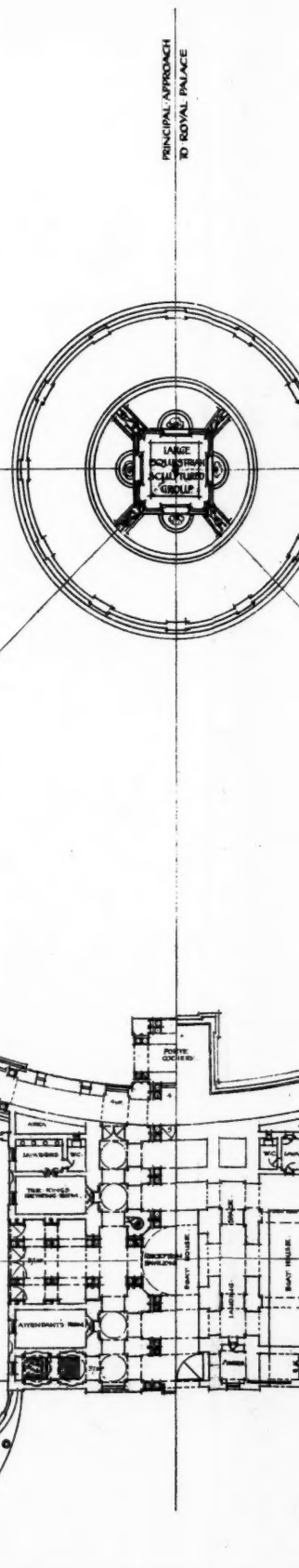
ROYAL INSURANCE BUILDINGS, PICCADILLY.—Mr. John Belcher, R.A., Architect.



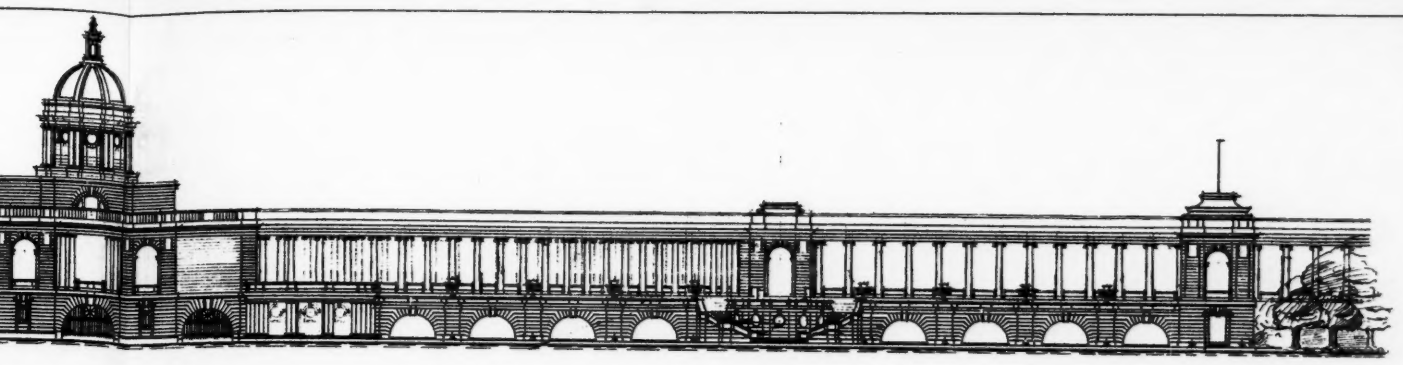
# DESIGN FOR A LANDING STAGE FORMING PRINCIPAL APPROACH TO A ROYAL PALACE

BY MR DOUGLAS W. DAY




*Grisseil Gold Medal, R.I.B.A., 1909*



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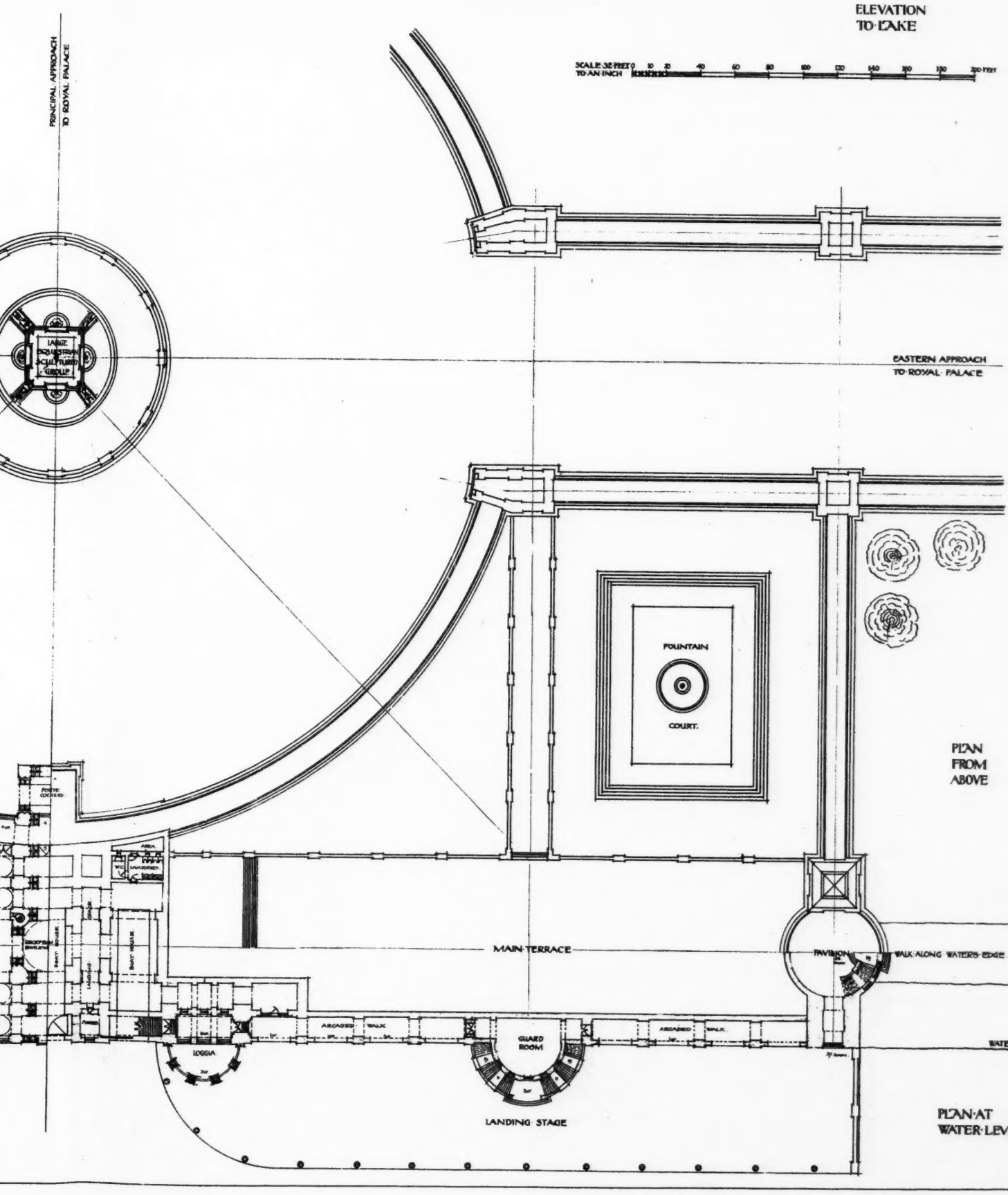
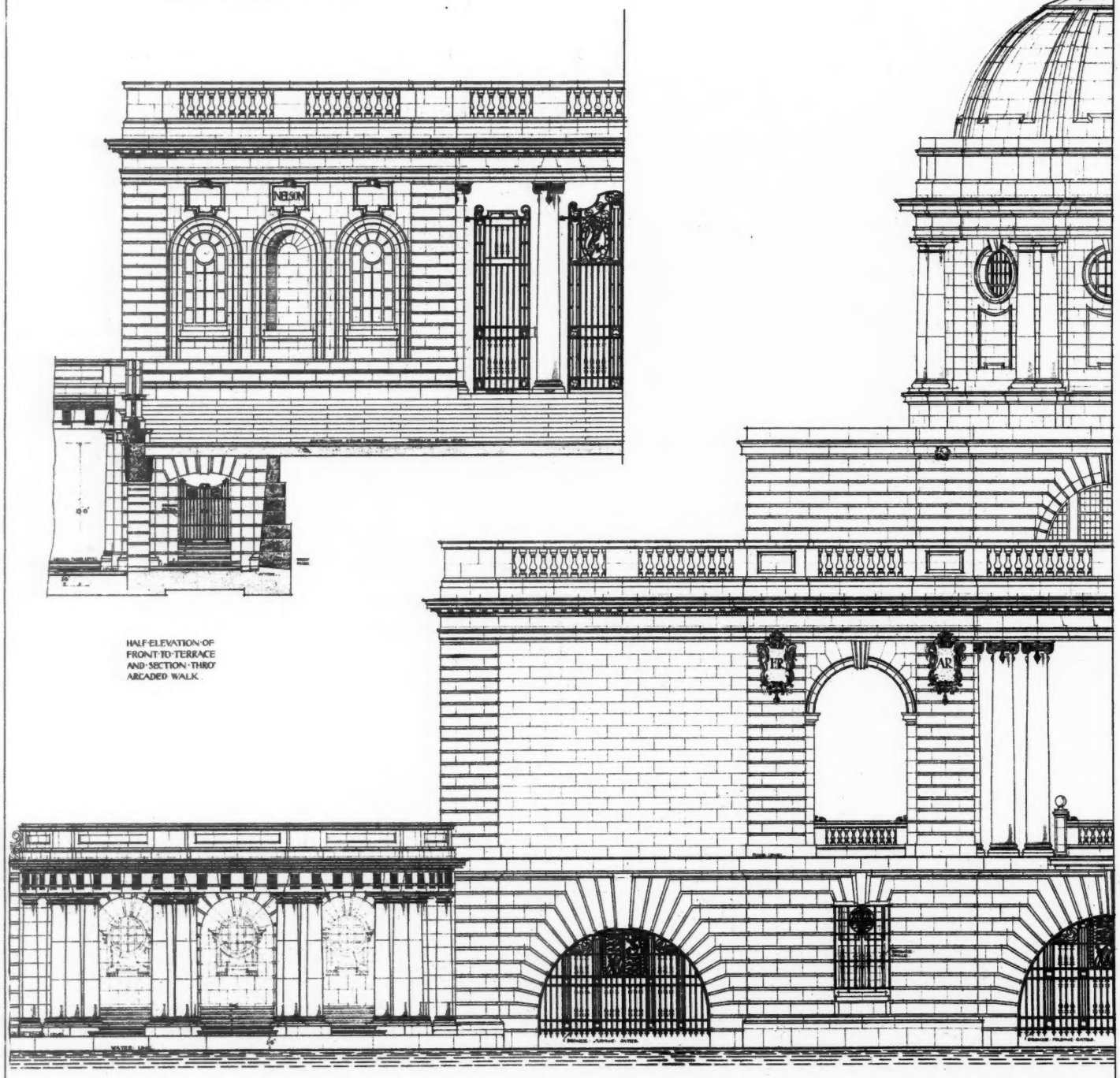



PLAN FROM ABOVE

PLAN AT WATER LEVEL

# DESIGN FOR A LANDING STAGE FORMING PRINCIPAL APPROACH TO A ROYAL PALACE

BY MR DOUGLAS W DAY



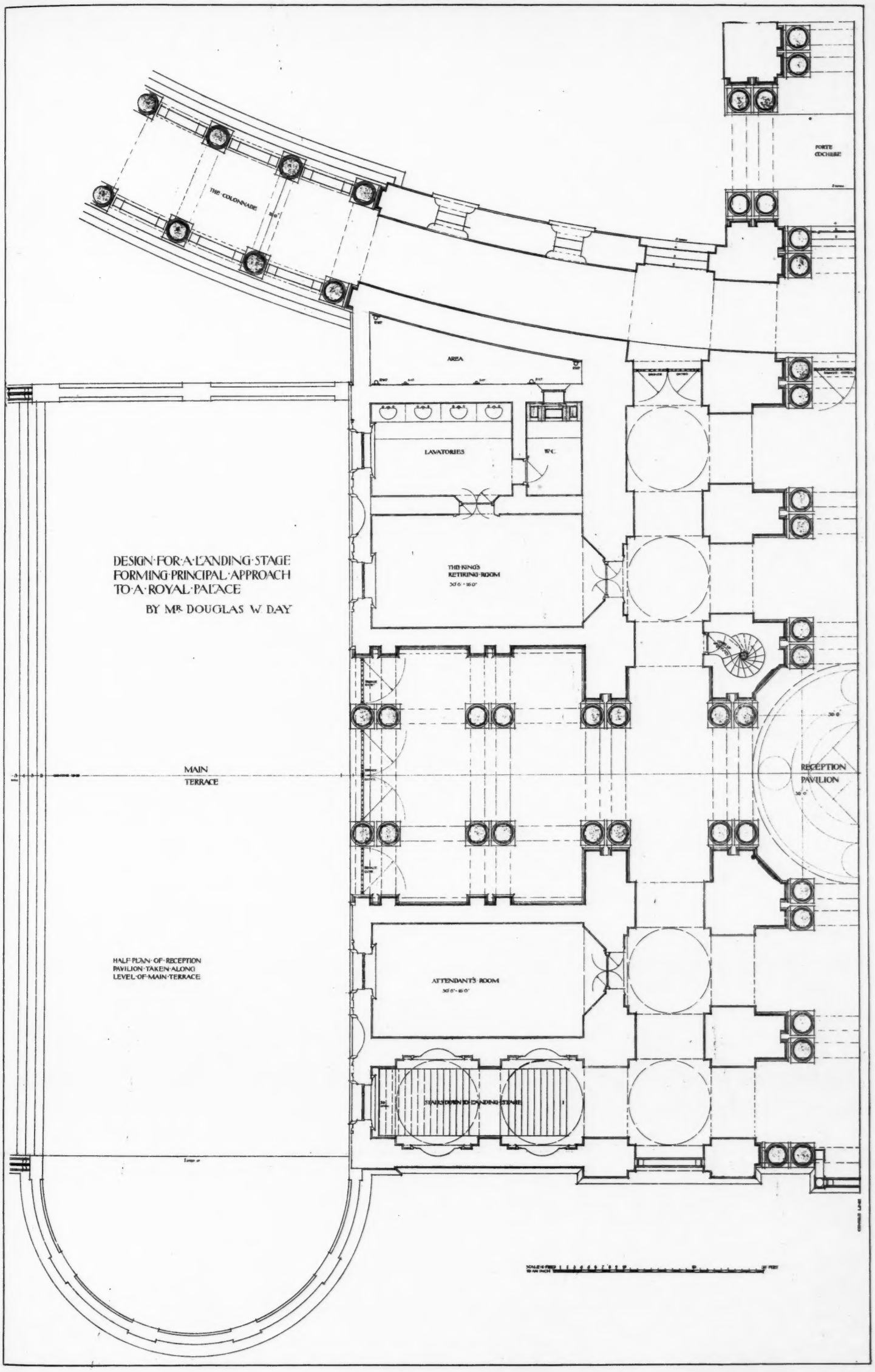

HALF ELEVATION OF FRONT TO TERRACE AND SECTION THRO' ARCADED WALK

HALF ELEVATION OF LOGGIA & BOATHOUSES

SCALE 4 FEET TO AN INCH

CENTRE LINE

*Grissell Gold Medal, R.I.B.A., 1909.*




*Grissell Gold Medal, R.I.B.A., 1909.*

# DESIGN FOR A LANDING STAGE FORMING PRINCIPAL APPROACH TO A ROYAL PALACE

BY Mr. DOUGLAS W. DAY




## OUTER DOME

TOTAL WEIGHT OF LANTERN = 680 CWTS
WEIGHT OF 1/20th SEGMENT OF LANTERN = 34 CWTS
WEIGHT OF 1/20th SEGMENT OF DOME INCLUDING ALLOWANCE FOR WIND PRESSURE = 150 CWTS
TOTAL = 184 CWTS
COMPRESSIVE STRESS AT BASE OF DOME ALONG "PARALLEL" PLANES = 11½ TONS
MAXIMUM STRESS ON MERIDIAN PLANES
a COMPRESSION = 8 TONS
b TENSION ON LOWER STONE = 10½ CWTS
ALLOWING No 1 DOWELS TO EACH BLOCK = A SHEAR OF = 2 TONS PER DOWEL.
DOWELS ARE 1¼" × 1¾"

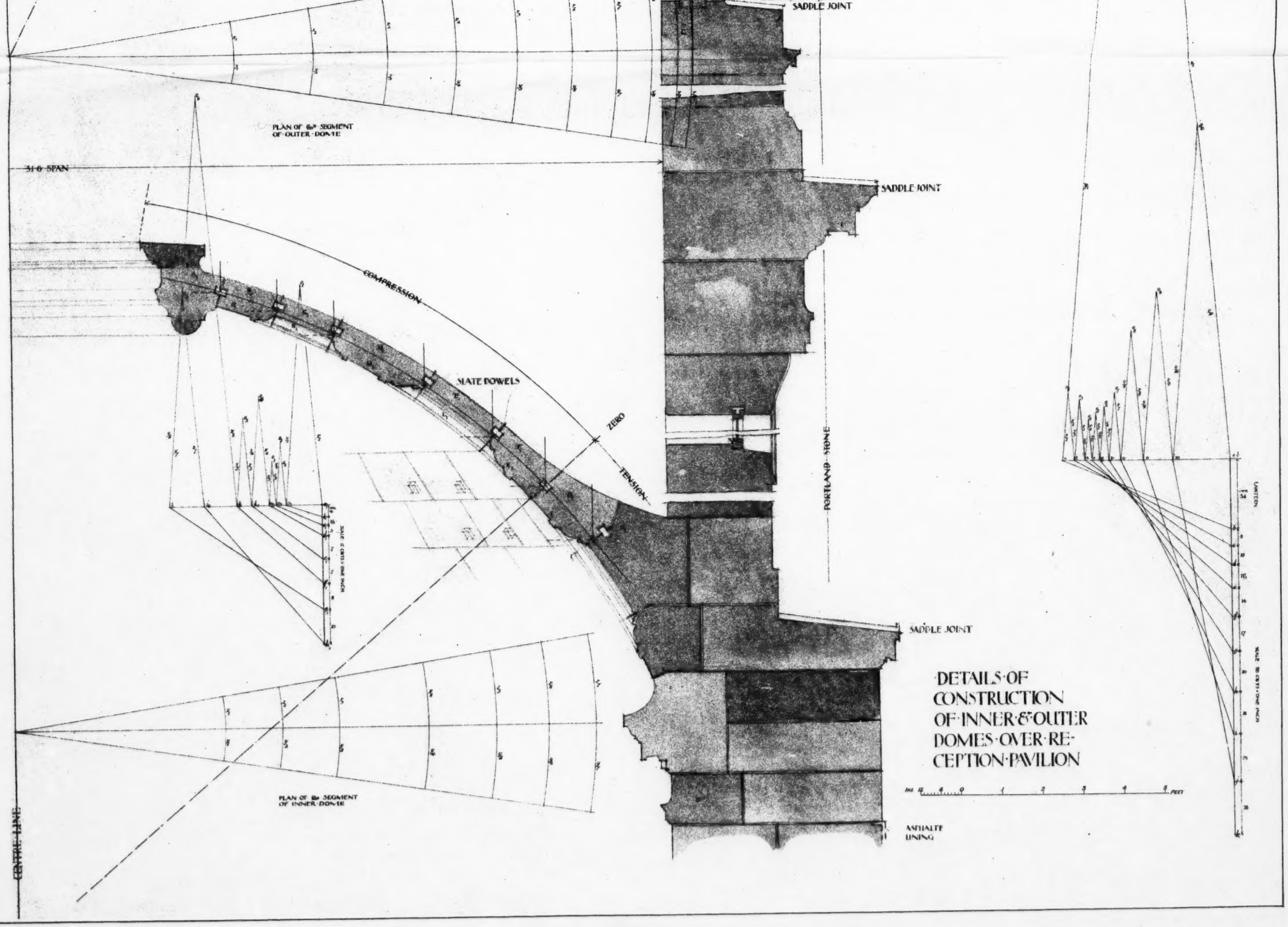
## INNER DOME

WEIGHT OF 1/20th SEGMENT OF DOME = 11 CWTS
COMPRESSIVE STRESS AT BASE OF DOME ALONG "PARALLEL" PLANES = 7 CWT
MAXIMUM STRESS ON MERIDIAN PLANES
a COMPRESSION = 4 TONS
b TENSION ON LOWER STONE = 65 CWTS
ALLOWING No 2 DOWELS TO EACH BLOCK = A SHEAR OF = 1·6 TONS PER DOWEL
DOWELS ARE 1¼" × 1½"

## MATERIALS

LANTERN & OUTER DOME IN CARRARA MARBLE · MAIN BUILDING IN "WHITBED" PORTLAND STONE · SHAFTS OF COLUMNS IN MONOLITH "VERDE ANTICO" MARBLE TO INTERIOR · PRINCIPAL PAVING IN MARBLE · AND HOPTON WOOD
METAL WORK IN BRONZE
CEMENT CONCRETE TO FOUNDATIONS

CARRARA MARBLE




*Grissell Gold Medal, R.I.B.A., 1909.*

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The design was reviewed in the general notice of "Students' Designs at the Institute" in our issue of January 23.

Mr. Day sends us the following remarks in explanation of his intention in the design:

"The conditions evidently implied a study in masonry construction, entailing, among other things, the working out of a stone dome; and allowing one to interpret them in such a free manner, the difficulty presented itself in deciding upon the general scale of the building.

As it was to form the principal approach, the author considered the pavilion, boat-houses, and landing stage should form the central feature of a general scheme for linking the palace with the lake, at the same time giving a stately and dignified effect to the whole group, whether approached from a distance from one side or the other.

The requirements of the building suggested a design of a Renaissance type, treated broadly, but on simple and well-proportioned lines, relying on the marble dome, lantern, and columns, with the bronze metal work, to impart a certain amount of colour to the main building."

## PICTURE EXHIBITIONS.

### AGNEW'S GALLERY.

THE forty-second exhibition of water-colours at Messrs. Agnew's Gallery in Bond-street is, as usual, a collection of exceptional interest. There are a number of Turner drawings, both in early and late style; some fine examples of De Wint's broad and sober style; two or three splendid Prouts—mannered, no doubt, but what an effective manner for architectural subjects; Collier's memorable view of Arundel Park; and Fred Walker's beautiful little work, "The Ferry." Among the works under less familiar names is a large and highly finished drawing, "Doune Castle," by G. F. Robson, a really beautiful piece of work in the style of an older day.

### THE LEICESTER GALLERIES.

The collection at the Leicester Galleries of a number of water-colours by the late veteran artist Callow is rather curious, for it seems that the further back we go the better he is. His drawings of later years at the Society of Water-colours we never cared for; they were heavy in colour and very mannered; yet here was this same artist, in the decade 1840-50, painting small landscapes of exquisite truth and freshness, as different as possible from the work of his later years. Those who only knew the Callow drawings of later years would hardly believe that these could have been by the same hand. A great many of the earlier ones are architectural subjects, in which the buildings are admirably drawn. A portfolio of his pencil sketches which was in the room showed most beautiful work in this medium. In another room is a collection of small paintings by Mr. Alfred Parsons under the title, "Pastorals." The really good things in this collection are the small studies of landscape effect, in which the artist gets free from the artificiality of effect and composition which is the defect of his larger paintings.

### THE GOUPIL GALLERY.

"London Day and Night" is the title given to a collection of paintings by Mr. Algernon Talmage at Goupil's Gallery. Some of these are fine, and present familiar London scenes under a new artistic aspect; "Snow Storm, Trafalgar Square," is especially good. There are some striking effects, if a little stagey, in some of the night scenes in London.

THE ARCHITECTURAL ASSOCIATION SPRING VISITS.—Our account of the last visit of the Architectural Association, to Holborn Town Hall and to offices in the Strand, is unavoidably left over until next week.

## THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, S.W., Mr. R. A. Robinson, Chairman, presiding.

*Loans.*—It was agreed to lend Battersea Borough Council 5,000*l.* for repairs to roads; Poplar Borough Guardians 5,580*l.* and 1,000*l.* for poor law purposes; Stepney Borough Council 10,000*l.* for electric lighting; and Wandsworth Union Guardians 20,000*l.* for poor law purposes.

*Execution of Jobbing and other Works.*—The General Purposes Committee reported as follows:—

"In continuation of our report of February 2, 1909, on the subject of the future execution of jobbing works and of the shoring and hoarding works connected with dangerous structures, we report that we have approved the following proposals as a basis on which the several contracts shall be framed. Three separate forms of contract are necessary, viz., for architectural works, for engineering works (excluding works of a mechanical character, which will in any case have to be dealt with quickly by the firms most experienced in this class of work), and for hoarding and shoring works (dangerous structures). For jobbing works, we have arranged that tenders shall be invited by public advertisement for the execution, for a period of three years, subject to six months' notice on either side after the expiration of the first year, of architectural and of engineering works respectively, either within the whole county or within either of the districts north and south of the Thames, the Council reserving to itself the right to accept a tender for either description of work within either the whole county or one or other of the districts.

As regards hoarding and shoring works, we have arranged that tenders shall be invited from thirteen firms of repute selected by us; that the contract shall cover the execution of all works within the county, and shall be triennial, subject to the same conditions as to termination as the jobbing works contracts."

*Tramways.*—It was agreed:—

That the estimate of expenditure on capital account of 42,000*l.*, submitted by the Finance Committee in respect of the acquisition by the Council from the Metropolitan Electric Tramways, Ltd., of the portion in London of the undertaking authorised by the Harrow-road and Paddington Tramways Acts, 1886, 1891, 1893, 1894, 1903, and 1904, be approved.

That the estimate of expenditure on capital account of 11,000*l.*, submitted by the Finance Committee in respect of the erection of the first portion of the Abbey Wood car-shed, be approved.

*Schools.*—The Education Committee reported that the Council on July 28 and 29, 1908, decided that 500 public elementary school places should be provided on the Barnsbury-park site (Islington, S.), and the consent of the Board of Education has been obtained to the provision of the additional accommodation. Plans for the erection of a school for the accommodation of 500 children on the site have been approved.

It was agreed that the estimates of expenditure on capital account of 158*l.* and 216*l.*, submitted by the Finance Committee in respect of taking out and lithographing quantities in connexion with the erection of (i.) a school on the Barnsbury-park site (Islington, S.) for the accommodation of 500 children, and (ii.) a higher school on the Camden-street site (St. Pancras, E.) for the accommodation of 440 children, be approved.

*Repairs to School Buildings on Schedule of Prices.*—The following recommendations were agreed to:—

(*a*) That the resolution of December 22, 1908, so far as it relates to the acceptance of the tender of J. Palmer for carrying out repairs to school buildings situated in groups 11 and 13 on the printed schedule of prices, be rescinded.

(*b*) That the tenders of F. & T. Thorne and Griggs & Son for carrying out repairs to school buildings, situated in the undermentioned county electoral divisions, at the printed schedule of prices, 1902, as revised by the addendum dated August, 1908, with percentages added thereto as respectively stated below, be accepted; that the contracts be for a period of one year in the first instance, and do remain in force thereafter until determined by three months' previous written notice by either party, such notice to expire at any time; that the solicitor do prepare, and obtain execution of, the necessary contracts; and that the seal of the Council be affixed to each contract when ready:—(i.) F. & T. Thorne, Isle of Dogs—Group 11, comprising Mile End, Stepney, and Whitechapel, repairs (measured work), 10 per cent.; sanitary (measured work), 15 per cent; day work, 10 per cent. (ii.) Griggs & Son, 71, Manchester-road, Cubitt Town—Group 13, comprising Bow and Bromley and Poplar, repairs (measured work), 5 per cent.; sanitary (measured work), 15 per cent.; day work, 7½ per cent.

*Prizes for Architectural and Museum Studies.*—It was agreed that, until further order, the award of prizes for architectural and museum studies be continued, and that one prize of 10*l.* and two prizes of 5*l.* each in respect thereof be offered annually.

*Fire Inspection of the Mansion House.*—It was agreed that the authority given by the Fire Brigade Committee to the Chief Officer of the Fire Brigade to advise the City Corporation as to the fire arrangements at the Mansion House be approved.

*Census of Homeless Persons.*—The Public Health Committee recommended, and it was agreed:—

That expenditure of 3*l.* 19s. 6d. be authorised in connexion with the taking of a census of homeless persons on January 15, 1909, subject to the General Purposes Committee determining that such expenditure can be defrayed out of the sum which the Council is empowered to expend in each year in investigating subjects of general importance to the inhabitants of the county.

That the report by the Medical Officer of Health submitting the result of a census of homeless persons on January 15, 1909, be printed and placed on sale, and that copies be sent to the Local Government Board, the City Corporation, and the several metropolitan borough councils.

*Paving Materials.*—It was agreed:—

That application be made to the Board of Trade, under the provisions of the London County Tramways (Electrical Power) Act, 1900, to appoint an arbitrator to determine the questions which have arisen between the Council and the St. Pancras Metropolitan Borough Council, with regard to the paving materials to be used in connexion with the reconstruction of the Council's tramways in St. Pancras, and that the Highways Committee be authorised to take any necessary steps in connexion with the matter.

*Rotherhithe Tunnel.*—The Improvements Committee reported as follows:—

"The work under the contract dated February 24, 1904, with Messrs. Price & Reeves for the construction of Rotherhithe Tunnel has been completed, and the measurements and accounts have now been settled. The total amount of the contract was 1,088,484*l.* 16s. 1d. This included provision money for certain definite objects, and 100,000*l.* as general provision. This latter sum was intended to cover such matters as electric lighting, drainage pumps, etc., in addition to the ordinary extras which arise in a contract of this kind. Certain claims by the contractors for additional extra works were settled by the Council's Chief Engineer at 8,145*l.* The electric lighting of the tunnel cost 10,350*l.* 2s. The principal other extra items and their cost were as follows:—Granite entrance arches to 'cut and cover,' 4,196*l.* 17s.; additional paving works in Horse-ferry Branch-road, 2,115*l.* 18s. 5d.; gauge arches at entrances to tunnel, 1,948*l.* 15s. 4d.; motor generator house, stores, office, etc., 1,636*l.* 18s. 6d.; Portland stone cornice, etc., at shafts Nos. 1 and 4, and granite mouldings in shafts, 1,473*l.* 4s. 8d.; drainage pumps, 1,225*l.* 6s. 7d.; foundations for Messrs. Hubbuck's new buildings in Broad-street, 1,025*l.* 12s. 11d.; house for superintendent, 870*l.* 18s. 3d.; rendering walls of open approaches, 649*l.*, 4s.; and repairs to the river wall at New Star Wharves, 387*l.* 7s. 9d. The Chief Engineer has certified that all the works under the contract have been completed. We hope to report at an early date as to sealing any necessary certificates in accordance with sect. 42 of the Thames Tunnel (Rotherhithe and Ratcliff) Act, 1900. In the meantime we are glad to report that the final settlement of the accounts shows that the total amount to be paid to Messrs. Price & Reeves under the contract is 995,809*l.* 6s. 8d., a saving of 92,675*l.* 9s. 5d. on the contract sum. We regard this result as very satisfactory, and as reflecting the greatest possible credit on all concerned."

*New County Hall.*—The Establishment Committee recommended, and it was agreed, that, as a matter of urgency within the meaning of standing order, the estimate of expenditure on capital account of 890*l.*, submitted by the Finance Committee in respect of advances to Mr. W. E. Riley, the Council's official Architect, for services indicated in clause 8 of the instructions to competing architects, be approved.

Mr. Norman, the Chairman of the Establishment Committee, stated, in reply to a question, that the amended plans of the elevation of the new County Hall were now before the professional assessors, and when they came back from them they would be submitted to the

Council. He saw no objection to the amended plans being shown so that the public might view them, as was the case with the original plans.

## APPLICATIONS UNDER THE LONDON BUILDING ACTS, 1894 to 1908.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Acts, 1894 to 1908. The names of applicants are given between parentheses:—

*Lines of Frontage and Projections.*

*Camberwell, North.*—A one-story addition to No. 21, Calais-street, Camberwell, to abut upon the southern side of Halsmere-road (Messrs. C. H. & M. Pay for Mr. J. B. Roux).—Consent.

*Hammersmith.* — Two buildings on the southern side of Wendell-road, Hammersmith, to abut upon the western side of Rylett-crescent and the eastern side of Hartswood-road, respectively (Mr. F. E. Rosser for Mr. W. Binfield).—Consent.

*Kennington.*—A one-story shop in front of No. 188, Kennington Park-road, Kennington (Mr. F. Warman for the Ragged School Union).—Consent.

*Kensington, South.*—An addition at the first-floor level of No. 123A, Queen's-gate, Kensington, to abut upon Harrington-road (Mr. W. H. Collbran).—Consent.

*Limehouse.*—Retention of a projecting crane at the factory of T. Hubbuck & Sons, Ltd., Broad-street, Limehouse (Mr. E. J. Gosling for T. Hubbuck & Sons, Ltd.).—Consent.

*Hampstead.*—A block of flats on the south-western side of Haverstock-hill, Hampstead, to abut also upon the north-western side of Antrim-street (Mr. J. Russell).—Refused.

*Width of Way.*

*Hackney, Central.*—A mission-hall building between Nos. 3 and 5, Tower-street, London Fields, at less than the prescribed distance from the centre of the roadway of the street (Messrs. T. Gates & Sons).—Consent.

*Width of Way, Line of Frontage, and Projections.*

*Strand.*—An addition to the Savoy Hotel over the public way of Somerset-street, Strand (Messrs. Collcutt & Hamp for the Savoy Hotel Company).—Consent.

*Projections and Construction.*

*Rotherhithe.*—Deviation from the plans approved for the erection of a gangway to connect premises on the northern and southern sides of Bermondsey-wall, Rotherhithe, so far as relates to the erection of enclosures to the sides of such gangway (Mr. W. T. Walker for Spillers & Bakers, Ltd.).—Consent.

*Width of Way and Construction.*

*Haggerston.*—Retention of a wood and iron office building of a temporary character on the western side of Stean-street, Shoreditch (Messrs. Lovegrove & Papworth for Mr. J. A. Bissell).—Consent.

*Space at Rear.*

*Hackney, South.*—A modification of the provisions of sect. 41 with regard to open spaces about buildings, so far as relates to the proposed erection of nine buildings to abut upon the eastern side of Mare-street and the north-western side of Morning-lane, Hackney, with irregular open spaces at the rear of certain of the said buildings (Mr. C. Winkley).—Consent.

*Deviation from Certified Plan.*

*Marylebone, West.*—Certain deviations from the plan certified by the District Surveyor, so far as relates to the proposed erection of a building upon the site of Nos. 33 and 34, Paddington-street, St. Marylebone (Messrs. Hudson & Hunt for Mr. Grosvenor).—Consent.

*Formation of Street.*

*Norwood.*—Consent to the application of Messrs. Law & Worssam, on behalf of Messrs. Stringer Brothers, for an extension of the time within which the roadways of the new streets to lead out of the eastern side of Upper Tulse-hill, Norwood, were required to be defined and thrown open to the public as highways.—Agreed.

*Separation and Alteration of Building.*

*Lewisham.*—The omission of fire-resisting separation between the trade and domestic portions of No. 1, The Warren, Perry-vale, Forest-hill (Mr. W. H. Hillyer for the St. Jacob's Oil Company, Ltd.).—Consent.

*Uniting of Buildings.*

*City of London.*—A deviation from the plans approved for the uniting of Nos. 3 and 4, Paternoster-buildings, City, by an opening at the first-floor level, so far as relates to an alteration in the construction of the doors to be fitted to such opening (Mr. F. J. Fisher for Wells Gardner, Darton, & Co., Ltd.).—Consent.

*City of London.*—The uniting of No. 5, Trinity-square and No. 1, Muscovy-court, Tower-hill (Messrs. Chambers, Giet, & Ford for Miss M. E. Matthews).—Consent.

*Islington, North.*—The uniting of No. 542, Holloway-road, Islington, with the one-story building at the rear (Mr. H. J. Bee).—Consent.

# Architectural Societies.

### SHEFFIELD SOCIETY OF ARCHITECTS.

At a meeting of the Society on the 11th inst., in the General Lecture-room at the University, Professor Reilly (Roscoe Professor of Architecture at the University of Liverpool) read a paper on "The Grand Manner in Architecture." Taking Sir Joshua Reynolds's fourth discourse on painting as the basis of his paper, Professor Reilly showed that the generalisations and principles of art expounded therein applied at the present time more particularly to architecture than to painting. The "great style" was Sir Joshua's equivalent for the term the "grand manner," the word "style" having been debased into a name for a catalogue of the minutiæ by which the building technique of one period was distinguished from that of another, so that the term "grand manner" did not necessarily mean a restriction to any particular so-called architectural style. The three main principles which might be translated from Sir Joshua's language of painting into that of architecture were unity, largeness of scale, and restraint. Taking these in order, he showed what was meant by true architectural unity. "The sublime," said Reynolds, "impresses the mind at once with one great idea, it is a single blow." After discussing the second essential compound to Reynolds's limitation of the great style in painting, Professor Reilly finally described it by saying that we should try to give our buildings an appearance that they are inhabited by not quite ordinary mortals, but a more leisured race with slightly bigger bodies and more refined perceptions than we ourselves possessed. The third essential was restraint, with its attendant and complementary quality of refinement. The second part of the lecture consisted of an historical survey from Egyptian down to modern architecture, illustrated by many lantern slides from buildings, into each of which Professor Reilly pointed out how three qualities entered; how that in Egyptian there was unity only when the temples were approached on a certain axis, and in their interiors. The Greeks, again, obtained exterior unity by voluntarily avoiding the more difficult problems of grouping. The Romans, the Professor said, in their baths and fora, grappled with problems as complex as any modern building, and obtained a wonderful unity of interior grouping. But, still, the exteriors of their buildings were hardly thought out, and though their scale was superb, they were lacking in everything that might be called refinement, both in materials and details. It was the period of Gothic architecture, with its logical and visible construction inside and out, which set a standard of truth and forced the Renaissance builders to pay as much attention to their exteriors as to their interiors. The result was that while striving to produce buildings which in their ignorance they considered to be in "the antique manner," they were really doing work as different from Roman work as that was from Greek.

### ABERDEEN ARCHITECTURAL ASSOCIATION.

A meeting of the Aberdeen Architectural Association was recently held in the Northern Arts Club, when Mr. William Banbury read a paper on "Decorative Plaster Work." Mr. Arthur Clyne, honorary President, occupied the chair. Mr. Banbury referred to the ancient use of modelled and coloured stucco as exemplified by remains in Mesopotamia, Egypt, Knossos, Greece, and Rome. The Romans used it extensively, often modelling it directly on the background without transferring it from a prepared design. The Italians of the Renaissance were also masters in this material, and introduced it into England in the time of Henry VIII., and from their influence the English craftsmen carried on the art, often with very beautiful results, although with coarser materials. He (the lecturer) concluded by urging a proper use of the material, and not to imitate effects suitable to wrought iron or carving in wood or stone. A large number of slides of ancient and modern work in plaster were shown, including the early XVIIth-century ceilings of Muchalls Castle. A discussion followed, taken part in by Mr. Clyne, Mr. G. G. Irvine, Mr. H. David, and others, Mr. Irvine drawing attention to the fine local examples, notably Craigievar and Muchalls, and in Aberdeen, where there were beautiful ceilings in the Victoria Lodging-House, and other old buildings in the city. Mr. Banbury was heartily thanked for his paper. Nineteen new members were added to the roll. On the motion of the Chairman, the congratulations of the members were accorded to Mr. J. A. Ogg Allan on his success in gaining the Godwin Bursary of the Royal Institute of British Architects.

# Competition News.

### SOUTH BANK-IN-CLEVELAND TOWN HALL.

Mr. G. G. Hoskins, F.R.I.B.A., has been appointed by the South Bank-in-Cleveland Urban Council as adjudicator of the twenty-four sets of plans submitted by architects for the new town hall and buildings shortly to be erected.

### CARNEGIE FREE LIBRARY, MIDDLESBROUGH.

A letter from Messrs. Russell & Cooper, architects, London, gave rise to a long discussion at the meeting of the Middlesbrough Free Library Committee on February 10. The firm desired to know whether open-access or the indicator system was to be adopted by the Committee for the new Carnegie Free Library, plans and specifications for which are now being invited. The Librarian (Mr. Baker Hudson) submitted a report on the subject, giving the arguments for and against the free-access principle, and quoting from the opinions of other librarians, following which Alderman Archibald raised the question as to whether it was not too late to discuss the matter, seeing that the time for submitting plans was now partly over. He suggested enlarging the site by buying two more cottages, and remarked that criticisms had appeared which showed that there must be something defective in the scheme at present set down. Ultimately the Committee decided, by five votes to four, to adopt the open-access system, but only for the non-fictional parts of the library. No action was taken in regard to the site. Councillor W. G. Roberts (who is a local architect), in answer to a question, said that he had advocated the present site from the beginning, and he believed it to be the most suitable one from every point of view. The Librarian, in the course of the discussion, said that he believed that the present scheme would allow of either an open-access or an indicator library.

### INSTITUTION OF HEATING AND VENTILATING ENGINEERS.

This Institution is offering prizes of 25*l.*, 5*l.*, and 2*l.* for the best scheme for heating, ventilating, and hot-water supply suitable for a hospital building shown on a set of plans prepared under the direction of the Council. A set of these plans will be furnished to each competitor, together with the necessary instructions, on payment of a deposit of 5*s.*, which will be returned upon the receipt of scheme and plans. Further particulars can be obtained from the Secretary to the Institution, 99, Fortnhill-road, Finsbury Park, N.

### EXTENSIONS TO LEEDS WORKHOUSE.

At the meeting of the Leeds Board of Guardians on Wednesday Mr. Richardson moved that Mr. George Frederick Bowman be appointed architect for the workhouse extensions. Mr. Vine, in supporting the motion, said that he should not like it to go forth that the Guardians were at all dissatisfied with Messrs. Winn & Sons, architects. The Board had every confidence in that firm and

in the quality of their work. It was, however, desirable to have the work split up. Mr. Stott moved the appointment of Messrs. Winn & Sons. Twenty-eight voted for Mr. Bowman and three for Messrs. Winn. The former was accordingly appointed architect for the work.

## BOOKS RECEIVED.

ENGLISH CHURCH ARCHITECTURE. By G. A. T. Middleton, A.R.I.B.A. (Francis Griffiths. 2s. 6d.)

PETROL AIR-GAS: A PRACTICAL HANDBOOK. By Henry O'Connor. (Crosby Lockwood & Son. 1s. 6d.)

THE CHURCH OF WORTH. By W. P. D. Stebbing, F.G.S. (The Essex House Press. 3s. 6d. or 5s., according to form.)

FRESCO-PAINTING: ITS ART AND TECHNIQUE. By James Ward. (Chapman & Hall.)

THE ROCK TOMBS OF EL AMARNA. Part VI. By N. de G. Davies. (Egypt Exploration Fund.)

# Correspondence.

## REGISTRATION.

SIR,—Please allow us to refer to the leading article on the subject of "Provincial Architects and Registration" which appeared in your issue of January 9 last.

We beg to point out that, while it is undoubtedly true that, at least up to a short time ago, the provincial architect suffered to a far greater extent than his metropolitan *confrère* from the competition of the illiterate and untrained so-called architect, the statement is not equally true to-day. Our reason for making this statement is that the London architect, in his turn, is now being rapidly ousted by the large furnishing firms, who employ architectural designers who, on behalf of the furnishing firms, now carry out much work which would otherwise have gone to the profession. These firms are not in a position to give the professional advice they offer to the public, as their assistants (whether qualified or not) must, from the very nature of their position, give the building owner prejudiced advice to his detriment.

The essence of the art of architecture is scholarship, and this, it cannot be denied, is only obtainable by study, and it is on this point, *par excellence*, that we registrationists take our stand. To us it seems mere folly to pretend that architects are the only artists that require no tuition. We defy our opponents to point to a single building having artistic attributes, and yet designed by an untrained architect.

We gather that you admit that proper training might result in better ventilation and heating in the Houses of Parliament, but here, if we rightly understand you, the advantages of training cease. Now, to our minds, the power of being able to design the architecture of the building is also the result of *training* in architecture, and it would not be confined to "practical details" only.

For the reasons we have already given, we are diametrically opposed to the view that "no scheme of registration can do anything to produce or to raise the art of architecture." The reiteration of this statement, unsupported by any evidence, if driven to its logical conclusion would mean that all training in the art of architecture is useless. This is absurd.

The statement made as to the engineers not demanding a Registration Bill may be true or otherwise; but we fail to see that this is material to architects. Is it not, however, a fact that the junior member of the engineering profession would be extremely glad to have registration?

The suggestion is made that registration is not demanded by the civil engineers; this is due to the fact that the members of that profession are loyal to their Institute. Even if this were true for the civil engineers, it is pointless as regards the architects, as the solid fact remains that so many of them keep aloof from the Royal Institute of British Architects.

You implied that if architects did join the Institute registration would then be unnecessary. To argue in opposition to the facts as they exist is futile. The fact remains that the Institute, after its seventy-odd years in attempting to attract the majority of the profession, has failed to do so; and therefore the controlling influence of registration becomes the more apparent.

We, however, feel that even if the large majority of architects did join the Institute, still we should support registration. Lawyers and doctors are immune from unqualified men practising to their detriment, and architects should strive to be at least on the same footing.

This can only be obtained by registration.

A. W. S. CROSS,
GEORGE HUBBARD,
PERCY B. TUBBS.

*** That means that architecture is a "profession," not an "art"; which is where we differ. To say that our remark as to the Civil Engineers is "pointless as regards the Institute, as many of them keep aloof," is merely repeating what we have already pointed out and complained of. The power of the Institute to keep the architects respected is weakened by the fact that many architects keep aloof from it. That is their own fault, and they themselves are to blame for the results.—ED.

## PERVIOUS WALLS.

SIR,—Mr. Henman's letter raises again the vexed question as to whether walls either of houses or hospitals should be pervious or impervious. In a paper read by Mr. Henman (see *Builder*, March 17, 1900) he referred to this matter. Can he now tell us what he would recommend as ideal? I have had to scrape off Duresco from inside of external walls on account of its imperviousness causing condensation to an extreme degree. Possibly the house was kept too cold, and if it and its walls had been kept warmer the imperviousness caused by the Duresco would not have resulted in condensation. Apart from that, however, the difficulty is that if walls are pervious, though they may be warm and good for ventilation, they tend to become foul. Is any solution to be found in the direction of securing warmth by a cellular material having a face that is impervious, *e.g.*, painted and varnished plaster on an ordinary brick, or even painted and varnished wood—or even something more distinctly cellular than that? This would give a warm wall, and yet sanitary because impervious; but ventilation would not take place through it. I do not think, however, that would outweigh the enormous advantage of a wall built of a material that would keep wet out on one side and germs on the other, and at the same time keep warmth in.

W. B. HOPKINS.

## DEVELOPMENT OF OSWALDTWISTLE ESTATE.

SIR,—This matter, which was not exactly a competition, was closed two or three weeks ago. As I am receiving letters on the subject by every post, I shall be obliged if you will allow me to ask other journals to copy this intimation.

Perhaps you will also permit me to offer one or two friendly hints to the many architects and surveyors who may be invited to suggest schemes for the development of small holdings estates under the new Act:—

(1) Make the greatest possible use of existing roads.

(2) Remember that a one-acre plot is not necessarily 70 yds. square, and that by making it 200 yds. long and 24 yds. wide a vast amount of unnecessary expense for new roads may be saved.

(3) Do not imagine that the average prospective small holder has a private income of 200*l.* a year, and wants a cottage and an acre or two of land merely as a delightful country residence.

(4) Ascertain at the outset the purposes for which the applicants desire to use their holdings.

I have recently had occasion to examine a number of plans submitted for the laying out of several different estates in Lancashire. Owing to the neglect of these elementary considerations, every one of these plans was hopelessly impracticable.

ALFRED SMITH,
Hon. Secretary, Lancashire Federation of Small Holdings Societies.

*Blackburn, February* 15, 1909.

## THE INSTITUTE OF SANITARY ENGINEERS:

### TREATMENT OF SEWAGE.

A SESSIONAL meeting of the Institute of Sanitary Engineers was held on Monday, at Nos. 120-122, Victoria-street, Westminster, S.W., Mr. W. H. Prescott, M.Inst.C.E., President, in the chair, when a paper was read by Mr. Harold Pritchard entitled "A Few Remarks on the Treatment of Sewage."

In the course of his remarks the author said, speaking of the septic tank, that he had in mind a sewage disposal works where, in a very short space of time, a tank had become almost semi-solid; but a few week's rest only sufficed entirely to resolve the sludge, and the tank was put to work again with excellent results. There was, however, always a certain proportion of solids in suspension carried over with the tank effluent, and it had been found advisable in many instances to provide a humus, or equalising tank, such as a "Dortmund" tank, which was a valuable adjunct, and here the solids were reduced. The purification of the septic effluent had received much consideration. For a time contact beds were much in vogue, but, speaking generally, this method was a bad one, as the capacity became greatly reduced after a few months' working, while the first flush from a contact bed was often almost as impure as septic tank effluent. It was the author's opinion that the contact bed would never have been employed but for the difficulty of obtaining uniform distribution of the sewage over the surface of a continuous filter. Happily, however, this difficulty had been overcome, and there were now several distributors on the market which were giving remarkable satisfaction.

By way of substantiating his remarks concerning the use of contact beds, the author gave a short description of the reconstruction of a small installation carried out by him in the Rural District of Burnley, with a few figures showing results obtained before and after the alterations were carried out. Originally the works consisted of septic tanks and single contact beds. These beds, which were four in number, used to be worked in cycle by means of automatic gear. The depth of the beds was 3 ft., and the medium used was ½-in. furnace clinker. Trouble arose from the offensive smells given off from the filters (not from the septic tanks, which were covered), and complaints were lodged almost daily by the occupants of houses situate in the neighbourhood of the works, whilst the Chief Inspector under the Ribble Joint Committee also complained of the state of the effluent discharging into the river. The tank capacity was increased, which showed but a very slight improvement, only to fall off again, and things eventually passed from bad to worse, until the filters became entirely choked. Samples having been taken and analysed periodically, which showed without mistake that the contact beds were failing to do their work satisfactorily, it was decided to reconstruct the works. A scheme was prepared which embraced the construction of a screening-chamber, the demolition of the four contact beds, which were replaced by a large percolating filter, and the construction of a lagoon near the outfall to the river. The new filter, which occupied the exact position of the old contact beds, and was fitted with a Ham, Baker, & Co.'s travelling distributor, had a depth of 4 ft. 9 in. The medium was composed of 1-in. and 3-in. hard burnt furnace clinkers mixed. After passing through the filter, the effluent entered the lagoon, where it took about an hour to pass through, and thereby had a chance of depositing any matter which might have been held in suspension. The works had been completed and working over two years, and samples had been taken of the effluent passing into the river, which had been analysed by the Public Analyst, whose figures proved that the results obtained justified the expense of the work having been incurred. The results, which had been followed continuously ever since by equally good results without one exception, clearly proved the advantage derived from the conversion of the system.

The author then referred to percolating filters, and said that the size of the medium most suitable for a filter seemed to be more a matter of opinion than anything else. In some cases it had been the author's experience to find that a shallow filter gave as good results with a fine medium as a deep filter with a coarse medium. However, it was a generally recognised fact that a filter which happened to do good work in one part of the country could not be considered as being capable of doing good work everywhere. The type of filter most suitable for any particular place must be determined by experimental work, if those about to construct works wished to spend their money to the best advantage. To do this an experimental filter on a small scale should be

constructed and watched closely for a period of twelve or eighteen months before any work on a large scale was executed.

As to aerating floors in percolating filters, he said that in many percolating filters recently constructed large gauge medium had been used in the bottom, the object being to allow the effluent to drain from the bed freely. In beds constructed on this principle the water, in finding its way to the channels, pursued a very erratic course through the intricate passages between the interstices of the medium, and so repeatedly changed its direction before it was clear of the bed. This must of necessity cause many small eddies and backwaters, in which the suspended matter, which had no great difficulty in finding its way by gravity to the bottom of the bed, was deposited in a gradually increasing quantity, which would in time render the lower portion of the filter useless for drainage or aerating purposes, and the medium would, consequently, need to be taken out, cleaned, and replaced. The benefit of an open or aerating floor between the medium and the floor of the filter would not be over-estimated, for it would, in a great measure, overcome this trouble. The effluent, after percolating through the filter, was at once entirely free from contact with the medium, and found a clear course open to the channels, at the same time retaining a clear air "space"—beneath the medium—which was continuously supplied with a current of fresh air. In order to overcome the defects in filters caused by the floor becoming coated with a slimy matter, such as was found on the medium itself, Mr. Bryan, of the Sewage Works Department, Birmingham, designed a curved aerating floor tile, the smoothly-glazed, round surfaces of which are carried right down to the foot of the tile. These tiles, when in position, formed a series of long channels which might be continued through the walls of the filters in cases where the filters were above ground, and in cases where the filters were below ground the channels formed by the tiles might be connected to special air chambers, constructed outside the filter wall, and brought up to the surface of the ground.

In dealing with the distribution of sewage upon percolating filters, the author briefly considered the evidence given before the Royal Commission by the Medical Officer of Health for the County of Staffordshire, Dr. George Reid, on May 17, 1905, and said that the uniform and effective distribution of sewage effluents on percolating filters had been a matter of anxious moment to all concerned, and had been very properly regarded as the most serious factor in the problem of sewage purification. The actual value of uniform distribution could not be over-estimated; in fact, success largely depended upon it. This problem had been, in a large degree, simplified by the introduction of the revolving sprinkler. Now, although revolving spreaders were capable of doing excellent work, it had always been felt by sewage engineers that what was really required was a rectangular distributor.

A discussion followed the reading of the paper, and a hearty vote of thanks was accorded to the lecturer.

## PROJECTED NEW BUILDINGS IN THE PROVINCES.

ABERDEEN.—Offices, Boys' Brigade. Mr. G. Mitchell, architect, 48, Union-street, Aberdeen.

Audley.—School, Wood-lane. Mr. W. Hutchings, architect, County Offices, Stafford; Mr. T. Godwin, builder, Hanley.

Avock (N.B.).—Additions, school (1,800*l.*). Mr. J. McDonald, architect, Fortrose, N.B.

Barnes.—Ten houses, Blind-lane, Messrs. Tyars & Jago, architects, 10, John-street, Adelphi, W.C.; conversion of houses into shops and erection of bakehouse, Lower Richmond-road, Mr. A. H. Davis.

Bearsden.—Rebuilding parish church (5,000*l.*). Mr. H. Higgins, architect, 248, West George-street, Glasgow.

Bothwell (N.B.).—Council offices. Messrs. Beattie & Morton, architects, 121, St. Vincent-street, Glasgow.

Buckhaven.—Offices for Wemyss Parish Council. Mr. G. C. Campbell, Wemyss, N.B.

Buxton.—Church, Mr. C. Swan, architect, College-road, Buxton.

Carshalton.—Two houses, Hawthorn-road. Messrs. P. V. Windebank & Co., builders, Hillcrome-road, Sutton.

Castlecary.—School. Mr. J. Martin, architect, Kilryth, N.B.

Cheshire.—Additions, Agricultural College. Mr. H. Beswick, architect, Newgate-street, Chester.

Cookfield.—School. Mr. F Coates, County Offices, Durham.

Cromarty (N.B.).—Additions, All Saints' Church. Messrs. Rose & Sons, architects, Inverness.

Darlington.—Secondary school. Mr. F. Rushworth, Architect, Shire Hall, Durham.

Dowanhill (Glasgow).—Additions, "Notre-Dame" Roman Catholic Church College (1,000*l.*). Messrs. Bruce & Hay, architects, 261, West George-street, Glasgow.

Dudley.—Enlargement of post-office (7,146*l.*). Messrs. John Barnsley & Sons, builders, 102, Ryland-street, Birmingham.

Dundee.—Home for dogs (2,000*l.*). Mr. J. Thomson, City Architect, Dundee.

Dunfermline.—Gymnasium (5,000*l.*). Mr. H. D. Barclay, architect, 245, St. Vincent-street, Glasgow.

Durham. — Additions, Technical school (5,000*l.*). Messrs. Oliver Leeson & Wood, architects, Milburn House, Newcastle-on-Tyne; Mr. J. White, builder, High Barnes Works, General Graham-street, Sunderland.

East Fife.—Laundry premises, East Fife Laundry Company. Mr. D. Hetherington, solicitor, Hunter-street, Kirkaldy, N.B.

East Ham.—Mortuary on site adjoining Town Hall, Mr. A. H. Campbell, Borough Engineer, East Ham; twenty-seven houses, Marlow-road, for Mr. J. Young.

Edinburgh. — Police-station, McLeod-street, City Architect, Edinburgh; new works, Simpson Label Company, Mr. A. Horsfield, architect, 88, George-street, Edinburgh.

Forfar.—Baths (6,000*l.*). Mr. H. J. Blanc, architect, Rutland-square, Edinburgh.

Galashiels.—Refuse destructor (1,500*l.*). Mr. W. Thomson, Borough Surveyor, Galashiels.

Glasgow.—Additions to factory, Cavendish-street, for Mr. C. J. Douglas, Messrs. Burnett, Biston, & Carruthers, architects, 180, Hope-street, Glasgow; engineering shops for Sir William Arrol, Ltd.

Hampton.—Twelve cottages and one shop, Priory-road, Mr. F. G. Hughes, surveyor, Marling Park, Hampton; bakehouse at Suffolk House, Hampton Hill, Mr. G. F. Sharpe, architect, 57, Chancery-lane, W.C.

Hawick.—Baths (8,000*l.*). Mr. C. Brown, Borough Surveyor, Hawick.

Higher Broughton.—Lecture-hall. Messrs. Dixon & Son, architects, Corporation-street, Manchester.

Insch.—Additions, school (1,300*l.*). Mr G. Sutherland, 26, Crown-street, Aberdeen.

Kent.—County school for girls at Dartford, additions to county school at Sittingbourne (400*l.*), additions to grammar school for boys at Maidstone (600*l.*), elementary schools at Denton, Edenbridge, Sheerness, and Sittingbourne. Mr. W. H. Robinson, Architect, Council Offices, Caxton House, Westminster, S.W.

Kirkwall (N.B.).—Restoration, cathedral. Mr. G. Mackie Watson, architect, 50, Queen-street, Edinburgh.

Lowestoft.—Two houses, St. Aubyns-road, Messrs. Woolnaigh Brothers, builders, 6 and 8, Lorne-road, Kirkley, Lowestoft; workshop, rear of St. Margaret's-road, Mr. C. E. Earl, builder, 56, Alexander-road, Lowestoft; four houses, London-road South, Mr. R. C. Todd, builder, London-road, South Kirkley, Lowestoft; saw mills, Commercial-road, for Saul & Co.; alterations and additions to Sanatorium, Mr. G. H. Hamby, Borough Surveyor, Lowestoft.

Manchester.—Church (4,000*l.*), Gorse Hill. Mr. Ernest Woodhouse, architect, 88, Mosley-street, Manchester.

Merton.—Horticultural College (200,000*l.*). Trustees under the will of the late Mr. John Innes (Charles Clare Scott, Frederick George Courthorpe, William Ernest Reid Innes) and others to be appointed.

Nairn.—Church (3,000*l.*). J. Strang, Vicars-street, Falkirk, N.B.

Newlandfield.—Tramway depôt (7,000*l.*). Mr. J. Dalry, architect, 46, Bath-street, Glasgow.

New Stevenston.—Additions, school (4,000*l.*). Messrs. Bruce & Hay, architects, 261, West George-street, Glasgow.

Norshop.—Rebuilding school. Mr. S. Evans, County Surveyor, Mold, Flints.

Paisley.—Rebuilding St. Columb's (4,000*l.*). Mr. T. Abercrombie, architect, 1, County-place, Paisley.

Port Hill.—Church Hall. Mr. A. R. Wood, architect, Burslem.

Queen's Park (Glasgow).—Extension to works of North British Locomotive Company (50,000*l.*). Sir William Arrol, Ltd., engineers, Preston-street, Bridgeton, Glasgow.

Ramshaw.—School. Mr. F. Rushworth, Architect, Shire Hall, Durham.

Richmond-on-Thames.—Extension of Town Hall. Mr. J. H. Brierley, Borough Surveyor, Richmond.

Robroystown.—Infectious Diseases Hospital (3,000*l.*). Mr. A. B. Donald, City Hall, Glasgow.

Ryedale (Dumfries). — Factory (4,000*l.*). Messrs. Barbour & Bowie, architects, 53, Buccleuch-street, Dumfries.

Ryehope (Durham).—School. Mr. Rushworth, Architect, Shire Hall, Durham.

Sedgeley.—Cookery centre and laundry. Mr. W. Hutchings, County Office, Stafford.

Southampton.—Two houses, corrugated iron and building, in Shaftesbury-avenue. Messrs. Jenkins & Sons, builders, 149, Above-bar, Southampton.

Stevenston (Glasgow).—Extension, railway-station, Glasgow and S.W. Railway. Mr. W. Melville, engineer, St. Enoch Station, Glasgow.

Stoke.—College home. Mr. A. Piercey, architect, Stoke; Mr. P. Bennion, builder, Longton.

Teuterbank.—County school (5,000*l.*). Mr. W. Hutchings, County Offices, Stafford.

Trimdon Grange (Co. Durham).—School. Mr. F. Rushworth, Architect, Shire Hall, Durham.

Ullespool.—Church. Messrs. A. Maitland & Sons, architects, Academy-street, Tain, N.B.

Wellington (Salop). — Swimming-baths (5,000*l.*). Mr. G. Riley, Borough Surveyor.

Wemyss Bay.—Additions to hotel. Mr. A. Stevenson, architect, Cathcart-street, Ayr.

Wolverhampton. — Swimming-baths (6,000*l.*), Mr. G. Green, Borough Surveyor; county school (20,000*l.*), Mr. F. Fleeming, architect, Midland Bank-chambers, Wolverhampton.

Wrexham.—Assembly-hall and shops. Messrs. H. Davies & Son, architects, Chester; Messrs. Tomkinson & Son, builders, 21, Dansie-street, Liverpool.

Yiewsley.—Wesley Guild Chapel (3,600*l.*). Mr. W. H. Knowles, Secretary.

## METROPOLITAN WATER BOARD.

AT the fortnightly meeting of the Metropolitan Water Board on Friday last week the following matters were dealt with:—

*Supplies to Schools.*—The Acton Urban District Council and the Ealing Borough Council had appealed against the Board's decision to treat supplies to schools as domestic supplies under sects. 8 and 9 of the Charges Act, 1907, and asked that the supplies should be afforded by measure at the rates prescribed by sect. 16 of the Charges Act. This would mean treating them as non-domestic supplies. The Appeal Committee regretted they were unable to advise the Board to modify their previous decision in this connexion.

*Government and Municipal Buildings Rebate.*—The Appeal and Assessment Committee reported on a question which had arisen as to the charges for water supply in regard to Government and municipal premises. Under sect. 9 of the Charges Act a rebate of 20 per cent. is allowed where buildings are occupied solely for the purposes of any trade or business, or of any profession or calling by which the occupier seeks a living or profit. The opinion of the Committee was that the Board was right in the principle it had hitherto adopted, viz., that the section should be regarded as affording relief to the occupiers of business premises as distinct from residential premises, and they therefore thought the rebate should not be withheld from business premises merely because they were in the occupation of a Government department or municipal authority who do not seek a livelihood or profit from the business carried on in such premises.

*Mechanical Filtration.*—The Water Examination Committee, having considered the question, reported that they were of opinion that carefully-conducted experiments as to the efficiency and cost of mechanical filtration will be of the greatest value in connexion with the Board's existing sources of supply, and the Chief Engineer stated that they would, moreover, have an extremely important bearing upon the schemes for the future supplies to London which are now under his consideration. It was highly important that the test should embrace different makes of mechanical filters, and it was recommended that 2,500*l.* should be expended on the purchase of four filters and incidental apparatus and on the fitting up of the same at Hampton, and that a further sum of 150*l.* be voted for the working expenses for twelve months.—Agreed.

*Alterations to Mains.*—In consequence of the reconstruction of the County Council tramways between Hackney-road and Stamford Hill certain alterations and diversions of the Board's mains will have to be carried out, and the Works Committee recommended that advantage of the opportunity should be taken to improve the supply to the district by substituting a 15-in. pipe for the 9-in. pipe. The total cost of the work would be 2,405*l.*, of which the County Council would pay 539*l.*—This was agreed to.

*District Engineers.*—It was agreed that in all future appointments the minimum salary attaching to the position of district engineer be 700*l.* per annum, and the maximum salary 1,000*l.*

## METROPOLITAN ASYLUMS BOARD.

THE following matters were dealt with on Saturday last week at the fortnightly meeting of this Board:—

*North-Eastern Hospital.*—The Local Government Board wrote approving of the proposed removal and re-erection of the disinfector at the North-Eastern Hospital.

*Darenth Asylum.*—The Asylums Committee reported that the floors of blocks 18, 19, and 20, including the first and second floor dormitories and landing, have been found to be in a very defective condition, and owing to this the ceilings under them became damaged by water when the floors are scrubbed. It was proposed that new flooring be substituted without delay, and that it be carried out under the supervision of the craftsmaster. It was further reported that the floors in wards 16 and 17 of the hospital had been relaid, at a cost of 106*l.*

*Leavesden Asylum.*—The Local Government Board forwarded a report by the Lunacy Commissioners, who as the result of visiting this asylum pointed out that the present arrangement whereby the blocks are only connected by a corridor on the ground floor adds greatly to the labour of supervision, which would be greatly lessened if the blocks were coupled up in pairs by two tiered iron bridges. The bridges would also afford a ready means of escape in case of fire for the very feeble and crippled patients. The Asylum Committee pointed out that in 1904 plans for constructing four iron bridges were prepared, but the Local Government Board called attention to the costly character of the proposal (5,000*l.*), and inquired why the existing fire-escape staircases were not considered sufficient for the purpose. In 1906 the Board set forth their reasons for advocating the provision of the bridges, but on April 2 of that year the Local Government Board stated that they were not prepared to issue an order. This decision of the Local Government Board, in the opinion of the Committee, relieved the managers of further responsibility.

*Children's Infirmary.*—It was agreed that the Works Committee be authorised to carry out the cleaning and painting work required at this institution by direct labour during the spring, at an estimated cost of 1,450*l.* It was further agreed to sanction an order upon Messrs. Garvie & Sons to supply and fix additional cupboards, at a cost of 268*l.* 12s. 7d.

*Park Hospital.*—The Works Committee reported having arranged for the cleaning and painting work at this hospital, which the Engineer estimates to cost 2,323*l.*, to be carried out by direct labour, with the exception of some asphalt work and repairs to tar-paving, which will be carried out by contract.

## LONDON AND DISTRICT BOROUGH COUNCILS.

*Bermondsey.*—In consequence of the increased number of consumers and the growth of the electricity undertaking, application is to be made to the London County Council for a loan of 3,000*l.* for the extension of the mains and services.

*Bethnal Green.*—The Borough Council are to join Hackney in appearing before the arbitrator in reference to the paving materials to be used by the London County Council in the electrification of tramways in the Cambridge-road.

*Camberwell.*—Fifteen tenders were received for new street work in Frankfurt-road. The lowest (717*l.* 13s.) was that of Mr. G. J. Anderson, and it has been provisionally accepted.

*Chelsea.*—A portion of Lots-road in front of the Council's Ashburnham depôt and the generating-station is to be paved with granite setts, replacing macadam. The tender of Messrs. A. & F. Manuelle for the annual supply of granite kerbstones and setts has been accepted, as has also those of Messrs. H. Heys & Co., Ltd., for York pavement; Messrs. Rowe & Mitchell for broken Guernsey or Alderney granite; and Mr. L. Summereld for broken English granite.

*Fulham.*—The actual cost of mains extensions in High-street, Stephendale-road, and Kenyon-street, and the building of Talgarth-road substation was 1,488*l.*, as against the estimate of 1,403*l.* A rifle range is to be constructed in the basement of the men's swimming-baths at a cost of 60*l.*

*Hampstead.*—At the last meeting of the Borough Council the Chairman of the Electricity Committee (Alderman Pritchard) stated that owing to the introduction of metallic filament lamps there had been a decline in the current supplies to private customers. The amount received from this source for the December quarter was 23,713*l.*, against 25,483*l.* in the corresponding period of 1907. The effect of this would be to defer for some time the expenditure of additional capital for boilers at the generating station.

*Heston and Isleworth.*—At the last meeting of the Heston and Isleworth Education Committee it was decided to abolish the office of architect. The Committee are to consider how the work in this connexion is to be carried out in future. Subsequently it was resolved to acquire a site for a boys' school at Isleworth, and to apply to the Local Government Board for sanction to the necessary loan.

*Kensington.*—The Works Committee have approved of plans prepared by the Engineer for the erection of workshops, etc., on the southern side of Pembroke-road depôt, at an estimated cost, exclusive of lighting and heating, of 2,000*l.* They have further approved a plan by the Borough Engineer for the reconstruction of carpenters' and joiners' shops on the north-east side of the same depôt, the cost of which is estimated at 316*l.*; also a plan for roofing a portion of Walmer-road depôt at 332*l.* Wood paving in the following roads is to be renewed during the coming financial year, subject to provision being made for the necessary expenditure in the annual estimates:—Colville-road and Colville-terrace, 1,248*l.*; Elgin-crescent, 1,181*l.*; Beauchamp-place, 831*l.*; Kensington-road, 1,808*l.*; Thurloe-place, 257*l.* Subject to a similar proviso, portions of Portobello-road, at present wood-paved, are to be paved with 2-in. compressed asphalt, at an estimated cost of 2,054*l.*

*Shoreditch.*—The cost of the widening of Old-street at Nos. 324 to 328 was 5,875*l.* The purchase-money paid for interests and alterations to premises was 5,144*l.*

*Southwark.*—The Council has consented to the construction of a junction line of tramways between Borough High-street and Marshalsea-road.

*Tottenham.*—The North Metropolitan Electric Power Supply Company have informed the District Council that they hope to complete the arc lighting in the High-road before the end of the present month. Work in Green-lanes, Seven Sisters-road, and Lordship-lane will then be taken in hand, and carried out at the rate of about ten lamps per week. The following plans have been approved:—Mr. G. W. Rowley, twenty-three houses, Falmar-road, and shop, Clarence-road; Mr. T. Rowley, twenty-three houses, Keston-road; Mr. P. Hart, factory, Whitley-road, and additions to stores and offices, Seven Sisters-corner; Mr. C. D. Roberts, six houses and shops, High-road; Messrs. G. L. Wilson & Co., five houses, one shop, and one flat, Dowsett-avenue; Mr. H. Foster, nine houses and two shops, Dowsett-avenue.

*Woolwich.*—The Town Clerk has been authorised to call upon Sir Alex. Kennedy to arbitrate, under the terms of a contract, upon a dispute which has arisen between the Council and Messrs. Callender's Cable and Construction Company in regard to relaying mains. The local authority have agreed to contribute a third (not exceeding 7,150*l.*) of the actual cost of widening Albion-road, in connexion with the construction of tramways by the London County Council. The following building and drainage plans were passed:—Mr. A. C. Corbett, per Mr. J. J. Bassett, 121, Earlshall-road, Eltham, ten houses, Eltham; Mr. W. A. Jewell, per Mr. A. G. Hastilow, 39, Scholars-road, Balham, seven houses, Lee.

## Obituary.

### MR. STURGIS.

We regret to announce the death, on February 11, in New York, of Mr. Russell Sturgis, M.A., Ph.D., Fellow of the American Institute of Architects, the architect of some of the buildings for Yale University, and of many offices, residences, and buildings in New York and the eastern States. Mr. Sturgis was the editor and in part author of "A Dictionary of Architecture and Building—Biographical, Historical, and Descriptive," the three volumes of which were reviewed in the *Builder* of April 27 and August 3, 1901, and July 19, 1902. He was the author of "How to Judge Architecture: A Popular Guide to the Appreciation of Buildings" (*Builder*, March 19, 1904); "The Appreciation of Sculpture" (*Builder*, July 1, 1905); and "The Appreciation of Pictures," 1905; "A History of Architecture," of which the first volume, "Antiquity," was reviewed in our columns on April 27, 1907; and of "The Arts of Design," a series of six lectures delivered on the Scammon Foundation at the Art Institute, Chicago, 1905. He contributed many articles to *Scribner*, entitled "Grass and Trees in Towns," "Poet and Artist," "Colour Prints," "The Architect and the Critic," etc., with papers upon Herculaneum, the new portal of St. Bartholomew's Church ir Madison-avenue, New York, St. Paul's Chapel, Columbia University, and cognate topics; he frequently contributed to the *Architectural Record* (New York), *Architectural Review* (Boston), *Atlantic Monthly*, and the *International*, the subjects having a wide range and embracing "Parisian Doorways of the XVIIIth Century," "The True Education of an Architect," and "How to Treat the Classical Orders."

## General Building News.

### PROPOSED NEW CHURCH, BRISTOL.

It is proposed to build a new church in the district of St. Ambrose. The estimated cost of the scheme will be 10,500*l.*, but this will include 1,100*l.* for the upper part of the tower, which it is not proposed to proceed with at once, also 1,000*l.* for seats and other furniture. Accommodation for about 700 sittings will be provided in the nave and two side aisles. There will be a chancel of the same width as the nave, an organ-chamber, vestries for the clergy and choir, and a large upper room for choir practice, Bible classes, and other similar uses. The walls will be built of local stone, with Bath stone dressings, and the roofs covered with Broseley tiling. The architects for the building are Messrs. W. V. & A. R. Gough, of Bristol.

### PARISH CHURCH, SUMMERTOWN.

The foundation-stone has been laid of the new parish church of St. Michael and All Angels, at Summertown. The church when completed will seat 1,000 persons, and will cost about 13,000*l.*; it will consist of a nave, chancel, north and south transepts, morning chapel, north and south aisles, baptistry, clergy and choir vestries, etc. It is proposed to build first the sanctuary, chancel, and sufficient of the nave to accommodate 600 persons, at a cost of 7,865*l.* 16s. 6d., the lowest tender by Messrs. Wooldridge & Simpson, of Oxford, amongst twenty-three builders who tendered for the work, the remainder being built later on. The building will have walls of Hamborough stone, with Box-stone dressings. The architect is Mr. A. Mardon Mowbray.

### CHURCH OF ST. MARGARET, LEEDS.

This church, which was commenced in the early part of August, 1907, was opened last Saturday afternoon. Mr. Temple Moore is the architect. Externally the church is built of local red facing bricks irregularly coursed with Bramley Fall stone dressings. The roof of the nave is covered with red hand-made tiles. The aisle roofs, placed at right angles to the nave walls and finished with a gable to each of the four bays, are covered with local stone slates. The nave and chancel consist of four bays without break in the roof. The nave arcades are carried by circular stone pillars, 4 ft. in diameter, 24 ft. centre to centre, and a clear-story is included in a wooden groined and vaulted roof. The aisles, which are a little over 19 ft. wide, are subdivided by eight pillars, which carry the cross-arches supporting the aisle roofs, and contrast with the massive nave arcade pillars. The church is lighted by tall, single-lancet windows in each bay of the north aisle, and by groups of three in each bay of the south aisle; six deeply splayed and recessed lancet windows in two tiers of three each are placed in the east wall. At the east ends of the aisles are placed the choir and clergy vestries, connected by a passage at the back of the altar. A morning chapel is provided at the east end of the south aisle. The organ which was built by Mrs. R. Roberts, of Leeds, is placed over the choir vestry. The present structure is not complete. Another bay of the nave, and possibly a tower, is still to be added at the west end. Accommodation is now provided for 712 persons. The general contractors were Messrs. H. Atkinson & Son; the heating was carried out by Messrs. E. Oldroyd & Co.; the glazing by Messrs. Pape; plastering by Mr. T. Moore; painting by Messrs. Roylance & Horsman; the electric light was installed by Mr. O. Carr (all of Leeds).

### SCHOOL EXTENSION, PENDLEBURY.

The Swinton and Pendlebury Education authority are about to erect a new public elementary school in Warwick-street, Cromwell-road, Pendlebury, and for this purpose have accepted the designs of Mr. T. J. Bushall, architect and surveyor. The new school, which is a single story building, will afford accommodation for 500 boys, 500 girls, and 250 infants, and the probable cost, based upon an allowance of 10*l.* for each scholar, will be 12,500*l.*

### ASYLUM ENLARGEMENT, ETC., PORTSMOUTH.

Mr. F. H. Tulloch, C.E., Inspector to the Local Government Board, held an inquiry at Portsmouth Town Hall on the 10th inst. with reference to the applications of the Corporation to borrow a sum of 9,500*l.* for two new pauper

blocks at the Milton Asylum, and a second sum of 5,500*l.* for the widening and straightening and general improvement of Copnor-road. The proceedings were formal. Among those attending were the Borough Engineer, Mr. P. Murch, and Mr. A. E. Cogswell, Architect to the Committee.

PROPOSED PUBLIC SWIMMING-BATH, HIGH WYCOMBE.

The Corporation of Wycombe having applied to the Local Government Board for sanction to borrow money for the provision of a public swimming-bath at Lord's Mill, and for the acquisition of land for the widening of Oakridge-road, High Wycombe, Mr. W. O. E. Meade-King, M.Inst.C.E., Inspector of the Local Government Board, has held an inquiry into the application. The amount applied for was 900*l.* Mr. T. J. Rushbrooke is the Borough Surveyor.

PROPOSED PAVILION, LLANDRINDOD WELLS.

The Llandrindod Wells Urban District Council have resolvéd to apply to the Local Government Board for a loan of 10,000*l.* for the erection of a pavilion in the recreation-ground on the lines of plans submitted by Messrs. R. Wellings Thomas and W. A. Millward. The original intention was to spend 6,000*l.* on the proposed pavilion, but the Council are now satisfied that the needs of the place can only be met by a larger expenditure.

## Miscellaneous.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.

Mr. T. W. Newbold, who has been for eighteen years chief assistant in the City Architect's Department under the Sheffield Corporation, has retired from that post to enter into private practice in Sheffield in partnership with Mr. Frank Parkin, of Nottingham. On his retirement Mr. Newbold was presented, by his colleagues in the City Architect's and City Engineer's Departments, with a china cabinet, subscribed for by the heads of the departments and the members of their respective staffs.——The Pulsometer Engineering Company (Queen Victoria-street, E.C.) have acquired the business of Messrs. Easton & Anderson, Westminster (successors to Easton & Co., of Erith), including their goodwill, designs, records, and patterns; they have also secured the services of the heads of the designing and commercial staff.——Messrs. Gillespie & Beales (Amberley House, Norfolk-street, Strand) have been appointed London agents for Messrs. Rickard, Ltd., of Derby, makers of vulcanised india-rubber and other wires and cables.

SANITARY INSPECTORS' EXAMINATION BOARD.

The following are the candidates who have passed the examination for sanitary inspectors under the Public Health (London) Act, 1891, held January, 1909:—Miss Mary E. Bennett, National Health Society; Mr. Edgar Baber, Royal Sanitary Institute; Mr. Chas. E. Bintcliffe, Royal Sanitary Institute; Miss Mabel Brown, Birmingham Municipal Technical School; Mr. Gibson Bottomley, in office; Miss Dorothy Casey, National Health Society; Mr. James Clark, Hackney Institute; Miss Violet B. Cumming, Bedford College (for women); Miss Agnes Cooksey, Royal Sanitary Institute; Mr. Ernest C. Freeman, Royal Sanitary Institute; Mr. William Goldsworthy, Royal Sanitary Institute; Mr. Henry C. Green, Royal Sanitary Institute; Miss Christabel Hartley, National Health Society; Miss Margaret D. Higgs, National Health Society; Mr. Arthur E. Jury, Royal Sanitary Institute; Miss Dorothy H. Y. Radcliffe, Bedford College (for women); Mr. William H. Stokes, in office; Mr. Horace A. Tibbatts, Royal Sanitary Institute; Miss Clara Underwood, National Health Society.

CORSITE.

We have received two samples of a fluid called "corsite," which is sold by the Corsite Sales Company, of Manchester. The fluid is made in two grades:—No. 1 is intended to serve as an under coat for damp walls, and No. 2 is used as a preservative for ironwork. Damp walls that have already been painted with ordinary paint should have all the paint removed before the walls are painted with corsite. When used on ironwork two coats of corsite and one of paint are recommended. The fluid is very thin and dries rapidly. A smooth waterproof coat is left upon the surface to which it is applied.

THAMES CONSERVANCY BOARD.

At the meeting of the Board on Monday the following applications were granted:—Leigh District Council, to place a 24-in. storm-water outfall, and two 9-in. storm-water outfalls, with tidal flaps, in the river at Leigh Creek, and to extend the existing 15-in. storm-water overflow; Surbiton District Council, to place a 27-in. pipe for the discharge into the river of the effluent from proposed sewage works at Surbiton; Messrs. Watney, Coombe, Reid, & Co., Ltd., to excavate a barge berth 250 ft. long by 50 ft. wide, to place seven mooring piles, and construct a dwarf retaining wall in the river, also to erect a transporter over the towpath adjoining Mortlake Brewery; Brentford Gas Company, to construct a platform 1,045 ft. long in front of their premises at Brentford; British and Foreign Wharf Company, Ltd., to erect an overhead decking 86 ft. long on the gangway of their jetty at Lower East Smithfield; Associated Portland Cement Manufacturers (1900), Ltd., to place a mooring and buoy in the river at Grays; Union Cold Storage Company, Ltd., to erect a crane and two platforms overhanging the river at Red Bull Wharf, Upper Thames-street; Messrs. W. W. Howard Brothers & Co., to construct an embankment with a frontage of 545 ft. in front of their property in Rainham Creek.

NOTTINGHAM STREET IMPROVEMENTS.

Mr. R. H. Bicknell, M.Inst.C.E., Local Government Board Inspector, held an inquiry on the 3rd inst. into the application of the Nottingham Corporation for sanction to borrow 4,225*l.* for purposes of street improvement. The improvement scheme consists of the purchase of strips of land for the widening of Warser-gate, Bridlesmith-gate, and North-gate, Basford, and the execution of street works involved thereby, in addition to similar works in St. Bartholomew's-road, Churchfield-lane, and Ilkeston-road. Mr. A. Brown, the City Engineer, furnished the Inspector with details of the proposals.

THE BUILDING TRADES EXHIBITION.

We are informed that the success of the Building Exhibition at Olympia two years ago has resulted in a great demand for positions at the exhibition opening on April 17 next. Nearly every foot of space in the main hall, annexe, and gallery has now been definitely allotted. All sections of the trade are represented, covering an enormous range of exhibits. Arrangements have already been made for official visits from various societies interested, and a record attendance of visitors is assured. Around the walls of the annexe the designs sent in for the poster competition will be hung, for which a prize of 100 guineas was offered by Mr. H. G. Montgomery, M.P., the Director of the Exhibition. The adjudicators were:—Mr. Ernest George, President of the Royal Institute of British Architects, Sir Aston Webb, R.A., and Sir George Frampton, R.A., who took an immense amount of trouble and care before finally awarding the prize to Mr. George Denham, whose fine design will shortly appear on all the hoardings in London and the provinces. It has already been published in the *Builder*.

## Law Reports.

CASE UNDER THE LONDON BUILDING ACTS, 1894 to 1905:

DICKSEE *v.* T. LAYMAN, LTD.

THIS was a summons for the recovery of fees due to the District Surveyor in respect of certain alterations made to a building in the occupation of the defendant company.

The case was heard before Mr. Rose at Tower Bridge Police Court on January 28.

Mr. L. N. S. Pasmore, of Messrs. Hicklin, Washington, & Pasmore, appeared for the plaintiff, Mr. Bernard Dicksee, District Surveyor for Newington, etc., and the defendants, Messrs. T. Layman, Ltd., of Borough High-street, were represented by counsel, Mr. E. Layman.

The facts of the case were agreed upon between the parties as follows:—The work consisted of a new shop-front to No. 271, Borough High-street, a work to which the rules of the Act apply, and for which notice must be given to the District Surveyor, and the statutory fee paid to him. Notice was given on May 22, 1908, by Mr. T. R. Coysh, of Exton-street, Waterloo-road, the builder employed by defendants to do the work. The works were surveyed by the District Surveyor from time to time during the progress of the work, and were completed about June 3, 1908. The account of fees claimed to be due was sent to Mr. Coysh on June 30, but the said fees had not been paid by him, and he was in default. The account of fees claimed was sent to the defendants as "owners" on December 16, 1908, but the fees had not been paid. No. 271, Borough High-street, was one of four adjoining houses, Nos. 269, 271, 273, and 275, Borough High-street, which had originally been built as four separate and distinct shops and dwellings, but, being now all in the occupation of defendants, they had for some years prior to 1908 been united by the formation of openings in the party walls, viz.:—Nos. 269 and 271 by one doorway on the ground floor and one on the first floor, Nos. 271 and 273 by similar doorways, Nos. 273 and 275 by one doorway on the first floor only; there was no communication on the ground floor of these two last-mentioned shops, owing to the existence of a public footway leading through an archway within the site of No. 275 next to the party wall, from Borough High-street to Swan-street in the rear, and known as Avon-place; each house retained its entrance door.

The fee claimed had been based upon the area of the four original shops and dwellings as one building, forty squares, five stories, and was 3*l.* 7s. 6d. To this the defendants had objected, as they considered they were only liable for a fee calculated on the area of No. 271 only, twelve squares, four stories, 1*l.* 10s. This case was therefore brought to obtain the magistrate's ruling as to which was the correct method of calculation.

Mr. Pasmore, for the District Surveyor, urged that by the third schedule of the Act of 1894 the fee on an additional alteration or other work was specified to be "one-half the fee charged in the case of a new building, calculated upon the area of the whole building." He contended that this area was the total area of the four original buildings, which had become one building by being united. He quoted sect. 77 (2), which referred to buildings that had been united as "considered as one building only." Differences of opinion had existed, but the view he was now contending for was that adopted by the County Council. The matter had been the subject of a decision of the High Court in the case of Woodthorpe *v.* Spencer & Husbands (63 J. P., 246), in which Mr. Justice Channell, in his judgment, said:—"The two alleged buildings, A and B, were, at the time of the opening, completed, and were in fact already united by the opening on the second floor, they were then in fact one building, so that the opening complained of did not in fact unite two buildings." And later:—"So here we think we must take the whole block A and B to have been, ever since the opening on the second floor was made, one building, and not two."

Mr. Layman, for defendants, argued that the case relied upon by Mr. Pasmore was not in point; it was not upon a question of fees, but to determine whether the two alleged buildings had then been united, and the Court held that they had not, as having been already united they could not be united a second time. The decision was not whether there were two buildings or one. He contended that the mere making of openings in a party wall, though they united the buildings, did not make them one building. Sect. 77 (4) and (5) of the Act of 1894 referred to "buildings which have been united"; they were therefore still buildings though united. He also referred to the corresponding provision in sect. 18 (3) of the Amendment of 1908, and to the definition of "uniting" contained in subsect. (4) of that section, which, although the Act of 1908 did not apply to the present case, threw some light on the question.

Mr. Rose said he would take time to consider his decision, and adjourned the case till February 5.

At the adjourned hearing Mr. Rose said that the case required more time than he had been able to devote to it, and adjourned the case for another seven days.

On February 12 Mr. Rose read his considered judgment, which was as follows:—

"The question arising in this summons and the agreed facts is whether four separate shops and dwellings become by the opening of doorways through which there is access from each shop to the other one "building" within the meaning of that word in the London Building Act, 1894, sect. 154, so that the complainant who, as surveyor, has inspected an alteration in one shop is entitled to a fee calculated on the area of all four.

There is no definition in the Act of the word "building," but the words "new building," "domestic building," "public building," and "building of the warehouse class" are defined in sect. 5; the definitions of them, however, have regard to the adjective or qualifying phrase rather than to the word "building," and do not assist in the interpretation of that word standing alone.

I find no decision of the High Court upon it as used in sect. 154. But two cases bear upon the subject.

In Moir *v.* Williams (61 L. J. (M. C.), 33) a structure consisting of fourteen separate sets of chambers or rooms tenanted by different persons contained under one roof, and having a common staircase, was held by the Divisional

Court and the Court of Appeal to be one building within sects. 49 and 51 and schedule 2, p. 1, of the Metropolitan Building Act, 1855, and consequently that a District Surveyor was entitled to be paid fees as for one building only, and not as for fourteen separate buildings. Reliance was placed in argument on a provision in sect. 27 of that Act that separate sets of chambers tenanted by different persons should, if in a building of a specified area, be deemed separate buildings and be divided accordingly; but the Courts construed it as a mere building instruction dealing with the interior of the whole structure. The basis of that argument is now taken away by the addition to the corresponding sect 74 in the present Act of 1894 that the section shall not entitled the District Surveyor to charge for the inspection of each set of chambers as a separate building. But in deciding that case the Courts seemed to have been influenced by a provision that the Surveyor was to be entitled to his fee on the expiration of a month after the "roof" had been covered in. There is a similar provision in the existing Act, viz., sect. 157, plainly, however, applying to a new building. Fry, L.J., also attached importance to the fact of there being a common staircase not included in any one of the fourteen chambers, and consequently not in any building over which the Surveyor had control if each of the fourteen was a building of itself.

The decision is not on the same Act, nor on the same facts, but it is a guide to the proper consideration of the question now before me, for Lord Esher, M.R., said that "the word 'building' must have its ordinary and usual meaning given to it unless there is something to the contrary in the Act, and what is usually meant is an ordinary building—that is to say, a block of brick or stone work covered in by a roof." Fry, L.J., said that it "means a single building in the popular usage of the word"; and Lopes, L.J., that the word "building" ought to be construed "according to its ordinary sense or meaning."

There the subject-matter was, at least in external appearance, one "building" in the ordinary meaning of the word. It was one block of brick or stone work covered in by one roof.

Several adjacent buildings can, of course, by alteration, be converted into one. And several adjacent buildings may, in a sense, be "united." That fact is recognised by the present Building Act (1894), which provides in sect. 77 that "buildings shall not be united except where they are wholly in one occupation, or are constructed or adapted so to be." Upon that section a case, Woodthorpe *v.* Spencer and another (63 J. P., 246), decided in the High Court, is cited by complainant as an authority to show that buildings may be united by the opening of doorways between them. The appellant there had been summoned for violating sect. 77 by uniting two buildings. He had made a doorway between them on the first floor; but a doorway between them had previously been made on the second floor, and the Court held that "as the two alleged buildings A and B were, at the time of the opening, completed, and were in fact already united by the opening on the second floor, they were then in fact one building, so that the opening complained of did not in fact unite two buildings, and the offence was never committed at all." It had been contended that the fact of the first opening must be disregarded, as it had been made without the necessary consents; but Channell, J., after referring to cases on that point, said:—"We must take the whole block A and B to have been, ever since the opening on the second floor was made, one building and not two, even if it was illegally made into one building by illegally making that opening." The advocate for the complainant cited these words as binding upon me and triumphantly sat down; but I think that the learned judge, whose decisions in point I should readily obey, would be likely to disapprove of my taking a few words in his judgment from the context and supposing them to decide that any two buildings become one building when an opening is made between them. Taken literally, the words "united" and "made one" are synonymous, and it is usual and convenient to treat them as being so in ordinary speech. But the word "united" is often also used to express the idea of combination or connexion, although there may be no physical amalgamation of two objects. It is easy to conceive that two or more adjacent houses might be "united" by means of passage from one into the other, and yet remain two distinct buildings. Take as familiar examples St. Thomas's Hospital in London, or the "palace and a prison on each hand" of the spectator which are connected by the Bridge of Sighs at Venice. Nobody would, I think, describe the blocks composing the hospital or the structures on either side of the famous bridge as one building, notwithstanding the communication between the structures in each case. Nor do I think that the question, whether structures form one or two buildings, can depend upon the degree of proximity.

The state of things on which I have to decide the amount of the complainant's fee is shown in the summary of facts, and my judgment must be given on those facts only which the parties have agreed upon to place before me. From the summary, it appears that four separate and distinct shops and dwellings, which from their consecutive numbers must, I think, be taken to be contiguous in a street, and are all in the occupation of the defendant company, "have been united by openings in the party walls" by doorways. No other alteration of the structures or their external or internal condition is stated to have been made, and I am entitled to assume that all the characteristics of separate and distinct buildings, except that of non-intercommunication, remain.

In my opinion, the premises, although united in the manner described and in the sense of the word as used by the learned judge in Woodthorpe *v.* Spencer and another, have nevertheless not thereby become a "building or structure," mentioned in the singular number, within sect. 154 of the London Building Act, 1894, and parts 1 and 3 of the third schedule to the Act, but are still "buildings," in the plural number, and in the ordinary and usual meaning of the work, and that, therefore, the claim for the fee calculated on the area of the whole of them as one building cannot be maintained."

The order was therefore made for the payment of 1*l.* 10*s.* By agreement there were to be no costs in any event.

## MASTER PLASTERER'S ACTION AGAINST A TRADE UNION.

THE case of Smithies *v.* the National Association of Operative Plasterers and others was mentioned in the Court of Appeal, consisting of Lords Justices Vaughan Williams, Buckley, and Kennedy, on the 15th inst., upon the plaintiff's appeal from a judgment of the Lord Chief Justice.

It will be remembered that the plaintiff, Mr. Wm. Smithies, a master plasterer carrying on business at Birmingham, brought the action against the defendant Association, its trustees, and against Mr. Duckett, the Birmingham branch secretary, for an injunction and damages in respect of the calling out on strike of plaintiff's workmen on January 17, 1905, upon the ground that plaintiff was employing a man named Gibbs, who was regarded as "an objectionable" by the union. Plaintiff also claimed damages against two scagliola workers, named Forrester and Ecclesby, who had broken their contracts of service with the plaintiff. The Lord Chief Justice dismissed the plaintiff's action against the union, its trustees, and Duckett, but held that Forrester and Ecclesby had been guilty of a breach of contract, and assessed the damages against them at 25*l.* each. Mr. Smithies appealed from the decision of the Lord Chief Justice so far as it related to the defendant Association, its trustees, and Duckett, and on December 21 last the Court of Appeal (reported in the *Builder* of December 26) held that the Association and its trustees were liable inasmuch as they had ratified the breaking of the individual contracts by the continuance of strike pay after having knowledge that those contracts were broken. Judgment was accordingly entered against those defendants in favour of the plaintiff for 50*l.*, an agreed amount of damages. Plaintiff's appeal, however, so far as Duckett was concerned was dismissed with costs.

Mr. Montague Lush, K.C., for the plaintiff, said that two difficulties had arisen since their lordships delivered judgment. It would be in the recollection of their lordships that at the close of the judgment they tried to and did agree to the damages to avoid having a new trial for the purpose of getting the damages assessed. Now the trade union was contemplating appealing to the House of Lords, and that might result in the House of Lords ordering a new trial. He contended that if a new trial was ordered it should be left open to the plaintiff to ask for larger damages, because the plaintiff only agreed to the 50*l.* to avoid further litigation.

Lord Justice Buckley: I think that was so.

Mr. Lush said that the trade union said that if a new trial was ordered plaintiff was bound by his agreement as to damages. He (counsel) submitted that that would be cruelly hard on the plaintiff, who in taking the 50*l.* had obviously agreed to a smaller sum than the Lord Chief Justice would have himself awarded him. The second point which had arisen was this: By the judgment Duckett had got an order for costs against the plaintiff, and the plaintiff had got an order for costs against the trade union. Their lordships had granted a stay of execution pending an appeal to the House of Lords. Plaintiff did not want to appeal against the decision so far as Duckett was concerned, and in those circumstances Duckett would be able at once to tax his costs against plaintiff, and plaintiff's right to tax his costs against the union would be suspended until after the hearing of the appeal in the House of Lords. If plaintiff had got to pay the costs due from him to Duckett before he got his costs from the union it might put him in serious financial difficulty, because he was not a rich man. He contended that if there was to be an appeal to the House of Lords there ought to be a general stay of execution.

After hearing Mr. Simon, K.C., on behalf of the union, Lord Justice Vaughan Williams said they all thought that if there was an appeal to the House of Lords the order as to 50*l.* agreed damages no longer existed.

Mr. Simon said that with regard to the matter of the costs he was prepared to agree that there should be a stay of execution with regard to all matters.

Order accordingly.

## BUILDING BY-LAWS IN RURAL DISTRICTS.

AT Hexham recently the Duke of Northumberland was summoned by the Hexham Rural District Council for a breach of their by-laws by erecting a new building at Barrasford of wood instead of brick, stone, or other hard or incombustible material.

Mr. Meynell, who appeared for the District Council, stated that the by-law prohibited the erection of any building that was not enclosed by walls of brick, stone, or other hard or incombustible material. The building was erected, and there had since been a continuing offence. In 1907 the Duke decided to build a fish hatchery at Barrasford, and in August plans were sent to the sanitary inspector of the rural authority. They were accompanied by a letter in which it was stated that, though the building was shown as being of stone, it was possible that a wood building might be erected. The Council replied that they could not pass a building built of wood, and referred the Duke's advisers to the by-laws. The Duke, without submitting further plans, deliberately, and in defiance of the by-laws, in March of last year was found to be erecting a building which was in substance a wooden erection. The Council did not say that the dwelling was insanitary, but his Grace had deliberately disregarded the by-laws of the Council, which it was their duty to enforce. With regard to the question of fire, no doubt the house was well constructed, as it was lined with asbestos, but it could not be as safe from fire as a stone or brick building.

Mr. Griffiths Jones, who appeared for the Duke of Northumberland, said that his Grace did not wish wantonly to set aside the rules of the District Council, but the by-laws in force in the Hexham rural district were the by-laws made by the Local Government Board in 1875, and were simply those for urban districts. In 1875 application was made for urban power over eighteen parishes in the Hexham union, six being urban and semi-urban parishes, and the remainder country villages surrounded by agricultural land and moorland. He agreed that under these by-laws the Council had no option but to proceed against the Duke; but the Council had the right to adopt other by-laws, which had been framed to meet such cases by the Local Government Board, but which the Council had not yet adopted. Therefore the Duke, as a matter of principle, deliberately took his stand in order to show that, as a matter of fact, the Council had power to alter the by-laws and adopt such as were readily applicable to rural or semi-rural parishes. The facts were these:—There was a fish hatchery situated in a stream running into the North Tyne at Barrasford, and that stream ran through the Duke's land. The hatchery was 250 yds. from the village of Barrasford, and it was necessary that there should be provision for actual residence on the spot, in order to prevent poaching and the danger from sudden floods. It was necessary that the residence should be erected quickly, and therefore the Duke of Northumberland had built a perfectly healthy and fireproof house, not in any way detrimental to the landscape. The Duke did not desire to flout the Council, but he contended that the by-laws were utterly unsuitable for a rural district, and the Council could adopt other by-laws at their next meeting.

After the Bench had consulted in private the chairman intimated that they had very carefully considered the case, and, under the very exceptional circumstances, they had decided to dismiss it.—*Times.*

# List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, —; Contracts, iv. vi. viii. x.; Public Appointments xiv. and xv.; Auction Sales, xxiv.

Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

*** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.

## Competitions.

FEBRUARY 20.—**Guildford.**—BRIDGE.—Designs are invited for proposed light footbridge over the River Wey, Guildford, constructed in oak or other materials. All information can be obtained from Mr. C. G. Mason, C.E., Tuns-gate, Guildford.

FEBRUARY 20.—**Penclawdd.**—CHURCH.—Bethel Independent Church, Penclawdd, is prepared to receive plans for the erection of a new chapel to contain 800 seatings. The approximate cost of chapel, including heating and acetylene lighting apparatuses, to be 3,000*l.* A premium of 5*l.* 5s. will be awarded the architect whose plan the committee may select. Plans to be deposited with the Secretary, Mr. John Rees, Penlan, Penclawdd, S.O.

MARCH 1. — **Torrington.** — MEMORIAL CROSS.—The Committee of Torrington and District Rolle Memorial invite designs for a memorial cross (preferably of granite), to be erected on a site in the Churchyard, Torrington. Cost, inclusive of erection, etc., not to exceed 100*l.* The Committee will pay 2*l.* 2s. for the selected design, but no other charge or expense. Particulars from Mr. George M. Doe, Town Clerk, Great Torrington.

MARCH 31. — **Middlesbrough.** — NEW LIBRARY.—The Free Library Committee invite plans for proposed new Library to be erected in Dunning-road and Grange-road, East Middlesbrough. Premiums of 50*l.*, 30*l.*, and 20*l.* Conditions, with plan of site, may be obtained on application to Mr. Alfred Sockett, Town Clerk, Municipal Buildings, Middlesbrough. Deposit, 2*l.* 2s. For further particulars see advertisement in our issue of December 25.

NO DATE. — **Bolton.** — PUBLIC LIBRARIES. — The Libraries Committee invite competitive plans from architects (who have been principals within the County Borough of Bolton for six months prior to the date hereof) for branch libraries to be erected in the districts of Astley Bridge, Halliwell, and Great Lever. Plans of the sites and conditions and instructions may be obtained at the offices of Mr. Samuel Parker, Town Clerk, Town Hall, Bolton, upon payment of 2*l.* 2s.

NO DATE.—**Bournemouth.**—LIBRARIES.—Architects practising in the County Borough of Bournemouth are invited to submit designs for the new building, Boscombe branch. Particulars to be obtained from Mr. Chas. Riddle, Borough Librarian, Central Library.

NO DATE.—**Elland.**—SCHOOL.—Architects desirous of competing for the work in connexion with Elland and District proposed new secondary school should apply for particulars to Mr. Leonard Clegg, Holywell-green, near Halifax. The competition is limited to architects having offices and practising in the West Riding of Yorkshire.

## Contracts.

### BUILDING.

FEBRUARY 20.—**Evesham.**—SCHOOL.—Worcestershire Education Committee invite tenders for the erection of a Council secondary school in Evesham. Applications for forms of tender and bills of quantities at the County Education Office, Worcester, must be accompanied by a deposit of 2*l.* 2s. The drawings may be seen on the same date at the office of Messrs. Buckland & Farmer, architects, Norwich Union-chambers, Congreve-street, Birmingham.

FEBRUARY 22.—**Bradley.**—TWO DWELLING-HOUSES,—Name and address to Mr. James H. Hall, architect and surveyor, Market-street, Huddersfield.

FEBRUARY 22. — **Hereford.**—COTTAGES.—Erection of cottages for the Hereford Co-operative Housing, Ltd. Drawings, etc., may be seen, and bills of quantities and form of tender obtained, at the offices of Messrs. Groome & Bettington, architects and surveyors, Palace-chambers, Hereford. A deposit of 2*l.* 2s. must be paid for bills of quantities.

FEBRUARY 22.—**Lindley.**—RESIDENCES.—Erection of two semi-detached residences in Lea-street, Lindley. Plans may be seen, and bills of quantities obtained, at office of Mr. J. Berry, architect and surveyor, 3, Market-place, Huddersfield.

FEBRUARY 22. — **Silloth.**—ARTIFICERS' WORK.—Tenders requested for the different artificers' work required (joiner's excepted) for the erection and completion of eight cottages at Silloth. Plans, etc., can be seen, and all information obtained, at 13, Esk-street.

FEBRUARY 23. — **Cardiff.** — WALL, ETC —Tenders are invited for the erection of about 730 lin. yds. of dwarf wall and wrought-iron railing in Cathays Park. Drawings, etc., may be seen, and forms of tender, etc., obtained, at the City Engineer's Office, City Hall.

FEBRUARY 23.—**Doncaster.**—SCHOOL.—Erection of a school at Doncaster. Names and trades, along with a deposit of 1*l.* 1s., to Messrs. Empsall & Clarkson, architects and surveyors 7, Exchange, Bradford.

FEBRUARY 23. — **Huddersfield.**—HOUSES.—Erection of four through houses in Newsome-road. Plans may be seen, and bills of quantities obtained, at office of Mr. J. Berry, architect and surveyor, 3, Market-place, Huddersfield.

FEBRUARY 23. — **Leeds.** — BOILER-HOUSE. — Leeds Property Committee invite tenders for the construction of a new boiler-house at the Town Hall, Leeds. The specifications may be seen, and quantities, etc., obtained, at office of Mr. W. T. Lancashire, City Engineer, Municipal Buildings, Leeds.

FEBRUARY 23.—**Linthwaite.**—HOUSES.—Works (except joiner's) required in the erection of two dwelling-houses at Roydhouse, Linthwaite. Plans may be seen, and specifications obtained, at the New Inn, Linthwaite.

* FEBRUARY 23.—**Sedgley.**—COOKERY, ETC., CENTRES.—The Staffordshire Education Committee invite tenders for combined cookery, laundry work, and handicraft centres at Upper Gornal, Sedgley. See advertisement in this issue for further particulars.

FEBRUARY 23.—**West Hartlepool.**—PAVILION ADDITIONS.—The Corporation invite tenders for the alterations and additions to the refreshment pavilion at the Ward-Jackson Park. Plans, etc., to be seen upon application at office of Mr. Nelson F. Dennis, M.Inst.C.E., Borough Engineer and Surveyor, Borough Engineer's office.

FEBRUARY 24.—**Blaina.**—SCHOOL EXTENSION.—Monmouthshire Education Committee invite tenders for completing an extension to the Blaina Council School, Blaina, in accordance with plans, etc., which may be seen at the office of Mr. R. L. Roberts, Architect, Abercarn, and at the school.

FEBRUARY 24.—**Bridlington.**—HOUSES.—Erection of three houses, St. John's-street, Bridlington, for Mr. A. J. Stevenson. Plans, etc., may be seen at office of Mr. C. F. Johnson, architect and surveyor, Westgate, Bridlington.

FEBRUARY 24. — **Rathdown.** — SANITARY ANNEXES.—The Rathdown Board of Guardians invite tenders for the erection of sanitary annexes at the Workhouse, in accordance with the plan, etc., prepared by Mr. George T. Moore, C.E., 1 and 2, Foster-place, Dublin, and which can be seen at the Clerk's Office, Loughlinstown.

FEBRUARY 24. — **Shavington-cum-Gresty.** — COUNCIL SCHOOL ALTERATIONS.—The County of Chester Administrative Sub-committee for Education for the Nantwich Union Area invite tenders for alterations and additions to the school buildings, Shavington-cum-Gresty, near Crewe. Plans, etc., can be seen at the office of Mr. H. Beswick, County Architect, Newgate-street, Chester, and quantities obtained on deposit of 1*l.*

FEBRUARY 25. — **Coachford, Ireland.** — WORKS.—Tenders will be received by Mr. A. W. Barnard, M.Inst.C.E.I., Marcroom, for the execution of certain works at Peake House, Coachford. Plans and specification can be seen at Cottage, Peake, Coachford.

* FEBRUARY 26.—**Liverpool.**—CHIEF OFFICES.—The Royal Liverpool Friendly Society, Liverpool, invite tenders for new chief offices. See advertisement in this issue for further particulars.

FEBRUARY 27. — **Porthcawl.**—COTTAGES.—Erection of twenty-four cottages at George-street, Porthcawl. All particulars may be obtained at the offices of Messrs. Geo. F. Lambert & Son, architects and surveyors, Bridgend.

MARCH 1. — **Bolton-upon-Dearne.** — ERECTION OF WALL, ETC., RECREATION GROUND, GOLDTHORPE. — The U.D.C. invite tenders for the work. Specification, etc., may be obtained from the Surveyor at his office upon a deposit of 10s. 6d.

MARCH 1. — **Pontypridd.**—HOUSES.—Llwynmadoc Building Club, Pontypridd, invite tenders for the erection of twenty houses or more at Pwllgwaun, Pontypridd. Plans, etc., may be seen, and form of tender obtained, on application to Mr. Edward Rees, architect and surveyor, Alexandra-chambers, Pontypridd.

MARCH 1.—**Sanquhar.**—GAS WORKS.—New retort-house, new bench, and other proposed improvements at the above works. Mr. Wm. Forsyth, Town Clerk, Sanquhar.

MARCH 1.—**Scissett.**—ROOM.—Erection of a parish-room for St. Augustine's Church, Scissett. Drawings can be seen, and bills of quantities obtained, at offices of Messrs. John Kirk & Sons, architects, John William-street, Huddersfield.

MARCH 1. — **Westgate-on-Sea.** — PUBLIC CONVENIENCES.—The Isle of Thanet R.D.C. invite tenders for the erection of public conveniences at the east end of the Winter Gardens at Westgate-on-Sea. Plans, etc., may be seen during ordinary office hours at the office of the Surveyor, Mr. G. L. Butterworth, Birchington, or at the Parochial Offices, Westgate-on-Sea.

MARCH 2.—**Margate.**—SHELTERS.—The Corporation of Margate invite tenders for the supply and erection of:—(1) A glass and iron addition to an existing bandstand on the sea front; (2) a timber and glazed folding wind screen; (3) a covered way, 110 ft. by 30 ft. All particulars may be had on personal application to Mr. E. A. Borg, Borough Engineer, 13, Grosvenor-place, Margate.

MARCH 2. — **Treorchy.** — HOUSES.—Erection and completion of eight or more houses at Pencelli Estate, Treorchy, for Messrs. Davies and others. Plans, etc., may be obtained at office of Mr. W. D. Morgan, M.S.A., architect, 194, Ystrad-road, Pentre.

MARCH 3. — **Amlwch.** — SCHOOLROOM, ETC.—Tenders are invited for the erection of new schoolroom, library, vestry, etc., in connexion with and adjoining the "Carmel" Welsh Congregational Chapel, Amlwch. Plans, etc., may be inspected at Amlwch on application to Mr. O. Dew, Postmaster, and also at office of Mr. Jos. Owen, F.R.I.B.A., architect and surveyor, Menai Bridge.

MARCH 3.—**Swansea.**—CHAPEL, ETC.—Erection of a new Baptist Chapel, school, and class-rooms, etc., at Manselton, Swansea. Plans may be seen with the Secretary, Mr. E. Davies, 27, Manselton-road, Swansea, or at office of Mr. W. Beddoe Rees, architect, 3, Dumfries-place, Cardiff, where bills of quantities may be obtained on deposit of 3*l.* 3s.

* MARCH 5.—**Nottingham.**—TELEPHONE EXCHANGE.—The Commissioners of H.M. Works, etc., invite tenders for a telephone exchange at Nottingham. See advertisement in this issue for further particulars.

MARCH 6. — **Ogmore Vale.**—CHURCH.—Erection of a new church at Ogmore Vale. Plans, etc., may be obtained at the offices of Mr. J. Cook Rees, architect, Parade-chambers, Neath.

* MARCH 11.—**Stockbridge.**—SCHOOL.—The Southampton C.C. invite tenders for new Council School at Stockbridge. See advertisement in this issue for further particulars.

MARCH 12. — **Aston-with-Aughton.** — SCHOOL.—The West Riding Education Committee invite whole or separate tenders for the following works:—Aston-with-Aughton, Aughton new school. Plans may be seen, and specifications obtained, on application to Mr. Francis Alvey Darwin, Clerk of the C.C., County Hall, Wakefield. A deposit of 1*l.* in each case must be sent by separate letter to the West Riding Treasurer, County Hall, Wakefield.

MARCH 12. — **Wombwell.** — SCHOOL. — The West Riding Education Committee invite whole or separate tenders for Wombwell new school. Plans may be seen, and specifications obtained, on application to Mr. Francis Alvey Darwin, Clerk of the C.C., County Hall, Wakefield. A deposit of 1*l.* must be sent to the West Riding Treasurer, County Hall, Wakefield.

* MARCH 16. — **Enfield.** — SCHOOLS. — The Enfield Education Committee invite tenders for erection of a block of schools at Lavender-road. See advertisement in this issue for further particulars.

NO DATE. — **Aberllefenny.** — SCHOOL OFFICES.—The Merioneth Education Committee invite tenders for building new offices at Aberllefenny Council School. The plans, etc., may be obtained on application to the architects, Messrs. Deakin & Howard Jones, M.S.A., Plas Ynys, Borth, R.S.O.

NO DATE.—**Bradford.**—WATER-CLOSETS.—Eight new water-closets to be erected. For specifications apply Mr. Wilks, 27, Oxford-road, Undercliffe, Bradford.

NO DATE. — **Castlerahan.**—COTTAGES.—The R.D.C. invite tenders for the erection of single and double labourers' cottages throughout the District. Plans, etc., prepared by Mr. Michael Grace, jun., Council's Engineer. Tender forms, etc., can be had on application to the Clerk or Engineer. Copies of plan and specification will be supplied on payment of a sum of 5s.

NO DATE.—**Dinas Mawddwy.**—ROUGH CASTING.—The Merioneth Education Committee invite tenders for cement rough casting portions of the external walls of Dinas Mawddwy Council School. The specification, etc., may be obtained on application to the architects, Messrs. Deakin & Howard Jones, M.S.A., Plas Ynys, Borth, R.S.O.

NO DATE. — **Hexham.** — COTTAGE.—Erection of a cottage on the Woodley Field Estate, Hexham. Names for selection to Mr. Edward Cratney, architect, 161, High-street East, Wallsend.

NO DATE. — **Swansea.** — OFFICES.—New block of offices in York-street, Swansea, for Messrs. T. T. Pascoe. Names to Messrs. Margrave & Peacock, architects, Metal Exchange, Swansea, together with a deposit of 5*l.* 5s. (cheque only). Quantities will be supplied, and plans may be seen, at the architect's office.

### ENGINEERING, IRON, AND STEEL.

FEBRUARY 22.—**Cymmer.**—BRIDGE WORKS, ETC.—Glyncorrwg U.D.C. invite tenders for:—(1) Excavations for the foundations, building in masonry, abutments, and other works in connexion with the bridge; (2) excavations, etc., building a retaining wall, together with constructing a urinal; (3) the construction, delivery, and erection of a steel girder bridge over River Avon at Cymmer. Plans, etc., may be seen at the Council Offices, Cymmer, and forms of tender obtained, on deposit of 2*l.* 2s.

FEBRUARY 22.—**Milton.**—EXTENSION OF TAR TANK.—Milton Regis U.D.C. invite tenders for the extension of the tar tank at the gasworks. Plans, etc., may be inspected at the gasworks upon application to the Manager.

FEBRUARY 22.—**Pontypridd.**—BRIDGE, ETC.—The U.D.C. invite tenders for :—(1) Supply and erection of a bridge in steel or ferro-concrete over the River Taff at Rhydfelen, Pontypridd; (2) masonry abutments and other works. Plans, etc., may be seen, and forms of tender obtained, at the office of Mr. P. R. A. Willoughby, A.M.Inst.C.E., Engineer and Surveyor, upon receipt by Mr. J. Colenso Jones, Clerk to the Council, Municipal-buildings, Pontypridd, of a deposit of 1*l.* 1s. in respect of each contract.

FEBRUARY 22.—**Sandbed, etc.**—BRIDGE, ETC.—The West Riding Highways Committee invite tenders for :—(1) Rebuilding of Sandbed Bridge, on the Todmorden and Halifax main road, over the Jumble Hole Beck; (2) the diversion of a portion of the Barnsley and Shepley-lane Head main road at Dakin Brook, in the parish of Cawthorne, in the Penistone rural district. Plans may be seen, and specification, etc., obtained at the office of Mr. F. G. Carpenter, West Riding Surveyor, County Hall, Wakefield, on payment of a deposit of 1*l.* in respect of each work. Cheques, etc., should be forwarded, and made payable, to the "West Riding Treasurer," at the County Hall, Wakefield.

FEBRUARY 22.—**Tipton.**—HEATING APPARATUS.—The Tipton U.D.C. invite tenders for providing and fixing a low-pressure heating apparatus at the Public Offices, Tipton. Plan, etc., may be obtained from Mr. Wm. H. Jukes, Engineer and Surveyor, Surveyor's Offices, Public Offices, Tipton, on payment of 1*l.* 1s.

FEBRUARY 23.—**Edmonton.**—WEIGHBRIDGE.—The U.D.C. invite separate tenders for erection, etc., *in situ*, at the entrance to Deephams Farm, Lower Edmonton, of a weighbridge for weighing materials up to 7 tons, also a weighbridge for weighing materials up to 15 tons, and an alternative price for taking down and removing the existing 5-ton weighbridge and refixing it at the proposed new office fronting Montagu-road. Forms of tender, etc., may be obtained of Mr. G. Eedes Eachus, M.Inst.C.E., Engineer to the Council, Town Hall, Lower Edmonton.

FEBRUARY 23.—**Halifax.**—ELECTRIC INSTALLATION.—Electric installation required at the new premises in Silver-street, now being altered for the Halifax Equitable Bank and Building Society. Specification can be had, and plans inspected, at the offices of Messrs. Richard Horsfall & Son, architects, 22A, Commercial-street, Halifax.

FEBRUARY 25.—**London.**—RIVER WORKS.—The Council of the Metropolitan Borough of Stepney invite tenders for condenser pipe work (partly subaqueous), settling tanks valve chamber, and river wall at Blyth's Wharf, on the south side of Narrow-street, Limehouse, E. The drawings may be seen, and specification, form of tender, etc., may be obtained, by applying to the Borough Engineer, Mr. M. W. Jameson, A.M.Inst.C.E., at the Municipal Offices, Great Alie-street, Whitechapel, E., upon depositing a 5*l.* Bank of England note.

FEBRUARY 25.—**Stepney.**—RIVER WORK.—The Council of the Metropolitan Borough of Stepney invite tenders for condenser pipe work (partly subaqueous), settling tanks, valve-chamber, and river wall at Blyth's Wharf, on the south side of Narrow-street, Limehouse, E. The drawings may be seen, and form of tender, etc., may be obtained, by applying to the Borough Engineer, Mr. M. W. Jameson, A.M.Inst.C.E., at the Municipal Offices, Great Alie-street, Whitechapel, E., upon depositing a 5*l.* Bank of England note.

FEBRUARY 26.—**Abertillery.**—PLANT.—The U.D.C. of Abertillery, Mon., invite tenders for the supply, delivery, and erection of electricity plant (two contracts). Forms of tender, etc., may be seen at the offices of Messrs. F. H. Medhurst & Brewer, Consulting Engineers to the Council, 13, Victoria-street, Westminster, S.W., and may be obtained on payment of a deposit of 3*l.* 3s. for each section.

MARCH 1.—**Salford.**—BORE-HOLE, ETC.—The Electricity Committee invite tenders for carrying out the following work at the Corporation electricity works, Frederick-road, Pendleton :—Specification V. 26, sinking a bore-hole and supply of pumping plant. Specification and form of tender may be obtained on application at the office of Mr. Victor A. H. M'Cowen, M.I.E.E., Borough Electrical Engineer, Frederick-road, Pendleton, on payment of a deposit of 2*l.* 2s. Extra copies may be obtained at 10s. each, which is not returnable.

MARCH 2.—**Belfast.**—BRIDGE.—The Improvement Committee invite tenders for the construction of a bridge across the River Lagan at Stranmillis. Specifications, forms of tender, etc., may be obtained at the office of the City Surveyor on payment of 1*l.*

MARCH 2.—**Radcliffe.**—ELECTRICITY WORKS EXTENSION.—The U.D.C. of Radcliffe invite tenders for the supply and erection of plant. Copies of specifications, with forms of tender, etc., may be obtained from Mr. S. Mills, Clerk to the Council, Council Offices, Radcliffe, on payment of a fee of 1*l.* 1s. for each section.

MARCH 3.—**Littlehampton.**—EMBANKMENT WORKS.—Littlehampton U.D.C. invite tenders for works of excavation, reshaping of embankment, and fixing of fencing at Toddington Corner, on the Worthing-road. Specification of work, etc., can be seen at the office of the Surveyor, Mr. H. Howard, F.S.I., Town Offices, Littlehampton, where also form of tender can be obtained.

MARCH 4.—**Pont Llanio.**—BRIDGE WIDENING.—The Cardiganshire C.C. invite tenders for the widening of the masonry bridge, erection of parapet and wing walls, and works incidental thereto, at Pont Llanio. The drawings and specification may be seen at the office of the County Surveyor, Aberystwyth. Copies of the specification, etc., may be had upon payment of 1*l.* 1s.

MARCH 8.—**Cambridge.**—SEWAGE PUMPING PLANT.—The Corporation invite tenders for the supply and erection of sewage pumping plant. The specification, etc., may be seen at the Borough Surveyor's Office, Guildhall, Cambridge, and copies may be obtained on payment of a deposit of 2*l.* 2s.

MARCH 12.—**Edinburgh.**—RECONSTRUCTION OF TYNECASTLE BRIDGE.—The Directors of the Caledonian Railway Company invite tenders for the works to be executed in the reconstruction of the bridge carrying the Haymarket branch over Gorgie-road at Tynecastle, Edinburgh. Drawings may be seen at the office of the Company's Engineer, Buchanan-street Station, Glasgow, where copies of the specification and schedule may be obtained on payment of 2*l.* 2s. An assistant engineer will attend at the bridge on the 23rd inst., at 11.30 a.m., to point out the site of the works.

NO DATE.—**East Retford.**—BRIDGE WORKS.—Widening and lowering Grove-street Bridge, Retford. Names and addresses to Mr. J. D. Kennedy, Borough Surveyor.

NO DATE.—**Newcastle-on-Tyne.**—SINKING A PIT.—Tenders are invited for sinking a staple pit from the low main seam. Particulars, etc., may be obtained by personal application to Mr. J. W. Thompson, Manager, East Holywell Colliery, Shiremoor, Newcastle-on-Tyne.

NO DATE.—**Wakefield.**—SINKING SHAFT.—For sinking 12-ft. shaft, 90 to 100 yds. deep. Apply Old Roundwood Collieries, Wakefield.

## MISCELLANEOUS.

FEBRUARY 22.—**Holbeck.**—WEIGHING MACHINE.—The Guardians invite tenders for a 5-ton weighing machine, fixed complete, at their Workhouse in Lane-end, Holbeck. Mr. George Diment, Clerk, the Workhouse, Holbeck, Leeds.

FEBRUARY 22.—**Poole.**—WATER-VAN.—For the supply of a 350-gallon water-van for the Corporation. Mr. Samuel J. Newman, F.R.I.B.A., Borough Surveyor, Market-street, Poole.

FEBRUARY 22.—**Welton.**—CARTING.—The R.D.C. invite tenders for carting road material. Forms of tender can be obtained from Mr. W. Epton, District Surveyor, Langworth.

FEBRUARY 23.—**Neston and Parkgate.**—TEAM LABOUR.—The U.D.C. of Neston and Parkgate invite tenders for the supply of team labour. Form of tender may be had on application to the Surveyor, Town Hall, Neston.

FEBRUARY 24.—**Aylesbury.**—CARTING, ETC.—Bucks C.C. Highways Committee invite tenders for general carting, and for haulage of granite. Forms of tender and other particulars can be obtained from Mr. R. J. Thomas, County Surveyor, County Hall, Aylesbury.

FEBRUARY 24.—**York.**—FIRE MAINS, ETC.—The Guardians of the York Union invite tenders for materials for a system of fire mains. Also tenders for materials for a system of telephones and fire alarms. Forms of tender, etc., may be obtained at office of Mr. George Sykes, Clerk, Union Offices, 1, Museum-street, York.

FEBRUARY 25.—**Bury St. Edmund's.**—SHEDDING.—The Suffolk Agricultural Association invite tenders for the erection of shedding, canvas for shedding. Specifications on application. Mr. Robt. Bond, Secretary, 6, Butter-market, Ipswich.

FEBRUARY 25.—**Dublin.**—MANTLES.—The Corporation of Dublin invite tenders for the supply of mantles and 6-in. Jena chimneys for street lighting for the ensuing year to March 31, 1910. Samples of at least six of each to be forwarded to the Town Clerk, City Hall, Dublin.

FEBRUARY 25.—**Hove.**—GAS BURNERS.—Tenders are invited for supplying incandescent gas burners, mantles, and fittings during a period of two years. Further particulars and forms of tender may be obtained at the office of the Borough Surveyor, Mr. H. H. Scott.

FEBRUARY 25.—**Manchester.**—METERS.—Manchester Corporation Waterworks Committee invite tenders for the supply of ½-in. high-pressure water meters, to withstand a test of 3,000 lb. per square inch. Specifications, etc., may be obtained on application to the Secretary, Waterworks Offices, Town Hall, Manchester.

FEBRUARY 25.—**Newry.**—ROAD ROLLER.—The U.D.C. of Newry (Ireland) invite tenders for a 12½-ton compound steam road roller and scarifier (independent type). Mr. William M. Cronin, Clerk to the Council, Town Hall, Newry.

FEBRUARY 26.—**Hampton Wick.**—SCAVENGING, ETC.—The U.D.C. of Hampton Wick invite tenders for execution of works. Mr. Harold Fawssett, Clerk to the Council, Council Offices, High-street, Hampton Wick.

FEBRUARY 27.—**Billesdon.**—TEAM LABOUR.—The R.D.C. invite tenders for the cartage during the year. Forms, giving particulars, to be obtained at office of Mr. W. E. Richardson, Clerk, 18, New-street, Leicester.

FEBRUARY 27.—**Bromley.**—SCAVENGING.—Bromley R.D.C. invite tenders for the removal of dust, ashes, and house refuse, in the various parishes. Forms to be obtained at office of Mr. Edward Haslehurst, Clerk to the Council, Union Offices, Park House, Bromley, Kent.

FEBRUARY 27.—**Sheffield.**—LAMPPOSTS, ETC.—The Watch Committee of the City Council invite tenders for the supply of lampposts and tulips, pillar heads, copper lamps, and lamp bottoms. Particulars and forms of tender, etc., may be obtained, and samples inspected, at the office of the Lighting Superintendent, 42, Corporation-street, Sheffield, on payment of the sum of 10s.

MARCH 1.—**Darlington.**—SCAVENGING.—The R.D.C. invite tenders for scavenging. Forms of tender may be had on application to Mr. William Pallister, Union Offices, Darlington.

MARCH 1.—**Edinburgh.**—CONVEYING.—Midlothian C.C. invite estimates for conveying road materials within the four districts of the county for the year 1909-1910. Schedules of quantities may be obtained at the Road Office, County Buildings, Edinburgh, or from the District Road Surveyors.

MARCH 1.—**Epping.**—CARTING.—Epping R.D.C. invite tenders for the cartage of gravel and materials. Forms, etc., can be obtained from the Surveyor, Mr. Forrester, Thornwood, near Epping.

MARCH 1.—**Lurgan.**—FENCING.—The Lurgan T.C. invite tenders for supplying and erecting about 300 yds. of wrought-iron unclimbable fencing, for enclosing Public Park; also ornamental entrance gates; also one entrance gate. Mr. F. W. Pollock, Clerk of Council, Town Hall, Lurgan.

* MARCH 1.—**Richmond.**—DEMOLITION OF BUILDINGS.—Tenders are invited for the demolition of "Castlegate," Lower Mortlake-road, Richmond. See advertisement in this issue for further particulars.

MARCH 1.—**Westgate-on-Sea.**—SCAVENGING.—Isle of Thanet R.D.C. invite tenders for the removal of house refuse on the Streete Court Estate (*a*) for one year (*b*) for three years. Particulars can be obtained on application to Mr. Chas. Taylor, Clerk, Boardroom, Minster, near Ramsgate.

MARCH 1.—**Whitley.**—SCAVENGING.—Whitley and Monkseaton U.D.C. invite tenders for the team labour in connexion with the emptying and disposal of the refuse of the ashpits, ashboxes, and privies, and shops in the district for a period of three years. Specifications can be seen, and form of tender obtained, on application to Mr. J. W. Harper, Inspector of Nuisances, Council Buildings, Whitley Bay.

MARCH 3.—**Bingham.**—TEAM LABOUR.—Bingham R.D.C. invite tenders for team labour on the district roads. Forms of tender may be obtained on application to Mr. R. H. Beaumont, Clerk.

MARCH 3.—**Littlehampton.**—DISPOSAL OF ASHES.—The U.D.C. invite offers for the disposal of cleaned ashes from their yard in Berry-lane. Mr. Arthur Shelley, Clerk to the Council, Town Offices, Littlehampton.

MARCH 3.—**London.**—CARTING.—The C.C. of Middlesex invite tenders for the cartage of about 12,000 tons (more or less) of broken stone; 2,000 tons of chippings; and about 4,000 tons (more or less) of gravel. Particulars and form of tender may be obtained at office of Mr. H. T. Wakelam, M.Inst.C.E., County Engineer and Surveyor, Middlesex Guildhall, Westminster, S.W.

MARCH 3.—**Northampton.**—TEAM LABOUR.—Northampton R.D.C. invite tenders for team labour on the several district roads. Separate tenders to be given for each district road. The District Surveyor, Kislingbury, Northampton, will supply all particulars.

MARCH 4.—**Swansea.**—STEEL WAGONS.—The Swansea Harbour Trustees invite designs, specifications, and tenders for fifteen 100 cubic ft. capacity strickle measure steel double side-tip wagons for conveying hot furnace ashes and refuse to spoil. Mr. Talfourd Strick, Clerk, Harbour Offices, Swansea.

MARCH 9.—**Bourne.**—LIGHTING.—Bourne U.D.C. invite tenders for lighting the town with coal gas. Mr. S. R. Andrews, Clerk, Bourne.

MARCH 11.—**Elham.**—LIGHTING.—The Guardians invite tenders, with designs and specifications, for the efficient lighting of the Workhouse at Lyminge, near Folkestone, Kent. Mr. R. Lonergan, Clerk, 11, Cheriton-place, Folkestone.

## PAINTING, etc.

FEBRUARY 22.—**Maidstone.**—PAINTING, ETC.—Tenders are invited for the painting of the exterior of the Museum, St. Faith-street, Maidstone. Particulars may be obtained at the office of the Borough Surveyor, Fair Meadow.

FEBRUARY 27.—**Blaina.**—PAINTING.—Tenders are invited for the painting of the schoolroom and classrooms of the English Wesleyan Church, Blaina. Particulars on application to Mr. W. R. Miles Jones, Cwmcelyn-road, Blaina.

* MARCH 1.—**Notting Hill, W.**—PAINTING, COLOURING, ETC.—The St. Marylebone Guardians invite tenders for painting, colouring, cleansing, repairs, and alterations at the Infirmary, Rackham-street, Notting Hill, W. See advertisement in this issue for further particulars.

MARCH 3.—**Leeds.**—PAINTING, ETC.—The Watch Committee invite tenders for cleaning down, painting, etc., the various police-stations in the City of Leeds. Specifications may be seen, and forms of tender, etc., obtained, at office of Mr. W. T. Lancashire, City Engineer, Municipal-buildings, Leeds.

NO DATE.—**Aspatria.**—RECOLOURING, ETC.—Cleaning, recolouring, and painting of the ceiling, wal's, and woodwork of the Aspatria Public Hall. Full particulars to be had from the Secretary, Mr. Cephas Bouch, of the Market-square, Aspatria.

## ROADS, SANITARY, AND WATER WORKS.

FEBRUARY 22.—**Ellesmere Port.**—STREET WORKS.—The Ellesmere Port and Whitby U.D.C. invite tenders for making and completing nine streets and a back passage. Plans may be inspected, and specifications, etc., obtained, at the office of the Surveyor, Mr. J. M. Hudson, Bank-buildings, Ellesmere Port.

FEBRUARY 22.—**Harrogate.**—STREET IMPROVEMENTS.—The Harrogate Corporation invite tenders for the private street improvements required in back roads on the Regent Estate. Quantities may be obtained, and the specification seen, at office of Mr. F. Bagshaw, Borough Engineer and Surveyor.

FEBRUARY 22-27.—**North Berwick.**—ADDITIONAL MAIN FROM GARVALD TO HEUGH, CONTRACT NO. 2.—The Provost, etc., of the Burgh of North Berwick invite tenders for cutting tracts for and laying and jointing about nine miles of 8-in. cast-iron pipes. Plans may be seen, and copies of the specification, etc., obtained, at the offices of the engineers, Messrs. J. & A. Leslie & Reid, C.E., 72A, George-street, Edinburgh, and 9, Victoria-street Westminster, S.W., on payment of 1*l.* An assistant engineer will meet intending offerers at East Linton Station at 10.12 a.m. to point out the position of the works.

FEBRUARY 22.—**Risca.**—SEWERAGE WORKS.—Risca U.D.C. invite tenders for the construction of about ten miles of sewers. Drawings, etc., may be seen at the Engineer's offices, Mr. A. J. Dardis, Council Offices, Risca. Quantities, etc., may be obtained from the Engineer on deposit of 3*l.* 3s.

FEBRUARY 22.—**Surbiton.**—STREET WORKS.—The U.D.C. of Surbiton invite tenders for street improvement works at Clay-lane, Surbiton. The drawings, etc., can be seen at office of Mr. Henry T. Mather, Engineer and Surveyor, Council Offices, Surbiton, and a copy of the specification obtained. A deposit of 1*l.* 1s. must be made.

FEBRUARY 23.—**Ilford.**—ROAD WORKS.—Ilford U.D.C. invite tenders for levelling, metalling, and making good that part of Coventry-road, Ilford, from Brisbane-road to a point opposite No. 152. Plans, etc., may be seen, and form of tender obtained, on application to the Surveyor, Mr. H. Shaw, M.Inst.C.E., Town Hall, Ilford, on payment of a deposit of 2*l.* 2s.

FEBRUARY 23.—**Ilford.**—ROAD WORKS.—Ilford U.D.C. invite tenders for forming, sewering, surface-water draining, paving, metalling, flagging, and channelling roadway adjoining the southern boundary wall of the Uphall Permanent Council School. Plans, etc., may be seen, and form of tender obtained, on application to Mr. H. Shaw, M.Inst.C.E., Surveyor to the Council, Town Hall, Ilford, on payment of a deposit of 2*l.* 2s.

FEBRUARY 23.—**Shrewsbury.**—STREET REPAIRS.—The Improvement Committee invite tenders for drainage works, paving, etc., Hall's Court, Castle Foregate. Specification, etc., can be obtained at the office of Mr. W. Chapple Eddowes, Borough Surveyor, Borough Surveyor's Office, The Square, on payment of 1*l.*

FEBRUARY 24.—**Edinburgh.**—DRAINAGE.—Roads, drainage, etc., for Edinburgh Marine Gardens, Ltd. Plans may be seen, and schedules of quantities obtained, at the office of Mr. Jas. D. Gibson, surveyor, 60, Frederick-street, Edinburgh.

FEBRUARY 24.—**Erdington.**—ROAD WORKS.—Erdington U.D.C. Highways and Buildings Committee invite tenders for the completion of the surfaces of roads. Plans may be seen, and copies of the specification, etc., obtained, upon application to Mr. Herbert H. Humphries, Engineer and Surveyor, The Council House, Erdington.

FEBRUARY 25.—**Keighley.**—PIPES AND SEWERS.—The R.D.C. invite tenders for the excavating and laying of about 840 lin. yds. of 4-in. water mains between Steeton and Eastburn; also for reconstruction of a sewer in Steeton. Specifications, etc., can be obtained from Mr. Thomas Burton, 248, Oakworth-road, Keighley.

FEBRUARY 26.—**Rhondda.**—STREET WORKS.—Rhondda U.D.C. invite tenders for the ballasting, metalling, paving, kerbing, channelling, etc., of streets. Plans may be seen, and form of tender obtained, at the office of the Engineer and Surveyor, Public Offices, Pentre, Rhondda, on payment of the sum of 1*l.* 1s.

MARCH 1.—**Auckland.**—SEWER.—The R.D.C. of Auckland invite tenders for providing and laying down about 389 yds. of 6-in. earthenware pipe sewer at Cockton-hill, Bishop Auckland. Plans, etc., can be seen, and further particulars obtained, on application to Mr. Charles Heslop, Sanitary Surveyor, 9, Cradock-street, Bishop Auckland. Forms to be obtained from the Surveyor.

MARCH 1.—**Ebbw Vale.**—EXTENSION OF CEMETERY.—The Ebbw Vale U.D.C. invite tenders for the work required in the construction of roads and footpaths, laying sub-soil and surface-water drains, building retaining walls, erecting entrance gates and railings, etc., in the extension of the Burial Ground. Plans, etc., may be seen, and specification, etc., obtained, at the office of Mr. T. J. Thomas, the Town Engineer and Surveyor. A deposit of 1*l.* by postal order will be required.

MARCH 1.—**Glasgow.**—STREET PAVING.—The Corporation invite offers for the paving of various streets in the city with rock asphalt. Specifications and forms of offer may be had on application at the Office of Public Works, City-chambers, 64, Cochrane-street.

MARCH 1.—**Narborough and Cosby.**—JOINT SEWERAGE SCHEME.—The Blaby R.D.C. invite tenders for the construction of 950 lin. yds. of new stone-ware pipe sewers, the construction of open septic tar effluent drains, irrigation works, air compress or station, etc., in the parishes of Narborough and Whetstone. Plans can be seen, and specification, etc., obtained, at the office of the Council's Engineer and Surveyor, Mr. J. Turner, Blaby-road, South Wigston, on payment of the sum of 1*l.* 1s.

MARCH 1.—**Pinder Green and Scholey Hill.**—SEWERAGE AND SEWAGE DISPOSAL WORKS.—Methley U.D.C. invite tenders for this work (two contracts). Plans, etc., may be seen at the offices of the Council's Engineer, Mr. John S. Richardson, East Parade-chambers, Leeds, and forms of tender may be obtained on payment, by cheque, of 3*l.* 3s.

✱ MARCH 1.—**Streatham.**—MAKING-UP AND PAVING.—The Wandsworth B.C. invite tenders for making-up and paving Woodnook-road, Streatham. See advertisement in this issue for further particulars.

MARCH 1.—**Wandsworth.**—MAKING-UP.—The Council of the Metropolitan Borough of Wandsworth invite tenders for the making-up and paving of Woodnook-road, Streatham. The specification, etc., may be seen, and forms of tender obtained, at the Borough Engineer's Office, New Streets Department, 56, East-hill, Wandsworth, S.W.

MARCH 1.—**Whitley.**—ROAD WORKS.—Whitley and Monkseaton U.D.C. invite tenders by schedule of prices for forming and completing roads. Plans, etc., may be seen, and forms of tender obtained, on application at the office of Mr. A. J. Roussell, A.M.Inst.C.E., Surveyor, Council Offices, Whitley Bay.

MARCH 2.—**Eston.**—ASPHALTING.—The Eston and Normanby Burial Board invite tenders for about 1,200 yds. of asphalting, to be done in the Cemetery. Specification can be seen at the Board's Office, in the Cemetery.

MARCH 2.—**Keith.**—WATERWORKS.—Tenders are wanted by the T.C. of Keith for works to be executed in introducing an additional water supply from the Shenwall and Davidston springs, Cairnie. Plans, etc., may be seen with the Engineer, and schedules of quantities will also be obtained from him on payment of 1*l.* 1s.

MARCH 3.—**Bushey.**—STREET WORKS.—The U.D.C. invites tenders for the execution of private street improvements in Rosebery, Victoria, and Merry Hill Mount roads, Bushey, in specification, etc., prepared by Mr. Ernest E. Ryder, the Council's Surveyor. Bills of quantities, etc., can be obtained (on payment of 1*l.* 1s.) on application to the Surveyor, Park-road, Bushey, where the drawings, etc., can be inspected.

MARCH 3.—**New Sarum.**—PRIVATE STREET WORKS.—The T.C. invite tenders for executing certain works in Bourne-avenue, from the London-road to Salisbury School. Plan, etc., may be seen, and bill of quantities, with form of tender, obtained on application to Mr. W. J. Goodwin, A.M.Inst.C.E., City Engineer and Surveyor, Municipal Offices, Salisbury.

MARCH 6.—**Greetland and Stainland.**—ASPHALTING.—West Riding C.C. (Education Department: Greetland and Stainland District Sub-Committee) Greetland Provided School, Bowling-green Provided School, Stainland, Sowood-green Provided School, Stainland. Tenders for asphalting work at playgrounds of the above-mentioned schools. Specifications may be had on application to Mr. J. H. Thorpe, Divisional Clerk, Education Office, Elland.

MARCH 10.—**Barnet.**—ROAD WORKS.—Barnet R.D.C. invite tenders for the materials and labour involved in the making-up and formation of Clarendon and Malden roads, Boreham Wood. Drawings, etc., may be seen at the office of the Council's Surveyor, Mr. T. England, "Fernlea," Furse Hill-road, Boreham Wood, where forms of tender may be obtained.

NO DATE.—**Harrogate.**—ROADS AND SEWERS.—Tenders are invited for the construction of about 400 lin. yds. of sewers, and for the construction of a road on the Firs Estate, Harrogate, the property of Mr. C. W. Whitworth. Plans, etc., may be inspected at the office of Mr. J. Lomas-Walker, Station-parade, Harrogate, solicitor, and quantities and particulars obtained, except on Saturdays; or of Messrs. Martin & Fenwick, civil engineers, 1, Park-place, Leeds.

NO DATE.—**Norwich.**—REINFORCED CONCRETE FOOTPATH.—For raised footpath in connexion with Heigham-Hellesdon-bridge, Norwich. Drawings, etc., may be seen, and forms of tender obtained, on application to the City Engineer, Norwich.

## STONES, MATERIAL, AND STORES.

FEBRUARY 22.—**Portsmouth.**—BRUSHES.—Portsmouth Education Committee invite tenders for the supply of brushes. Samples may be seen, and form of tender obtained, at the Committee's Offices.

FEBRUARY 22.—**Radcliffe.**—MATERIALS AND TEAM LABOUR.—The U.D.C. invite tenders for materials and general team labour. Forms of tender may be obtained on application to Mr. W. L. Rothwell, Engineer to the Council, and samples inspected at the Town's Yard, Radcliffe.

FEBRUARY 22.—**Welton.**—ROAD MATERIAL.—The R.D.C. invite tenders for the supply of about 6,300 tons of broken granite, about 3,460 tons of broken slag, also for chips and gravel for footpaths. Specifications, etc. can be obtained from Mr. W. B. Danby, Clerk, 2, Bank-street, Lincoln.

FEBRUARY 23.—**Edinburgh.**—PIPES.—Edinburgh and District Water Trust invite tenders for supplying a quantity of cast-iron pipes. The drawings may be seen, and copies of specification, etc., may be obtained, at the Superintendent's Office, No. 12, St. Giles'-street, Edinburgh.

FEBRUARY 23.—**Gravesend.**—MATERIALS.—The T.C. of Gravesend invite tenders for materials and goods. Lists of materials and goods, conditions of tendering and contract, may be obtained at the office of the Borough Treasurer, Town Hall.

FEBRUARY 23.—**London.**—METALS.—Bombay, Baroda, and Central India Railway Directors invite tenders for the supply of metals. Specifications can be obtained at offices of Mr. C. Crommelin, Secretary, Gloucester House, 2, 3, and 4, Bishopsgate-street Without, E.C., on payment of 1*l.* 1s. each, which will not be returned.

FEBRUARY 23.—**Milton.**—MATERIALS.—Milton R.D.C. invite tenders for supplying materials, etc. Particulars, etc., may be obtained on application to Mr. E. C. Pearcy, District Surveyor, 2, Crescent-street, Sittingbourne.

FEBRUARY 23.—**Neston and Parkgate.**—STONE.—The U.D.C. of Neston and Parkgate invite tenders for the supply of broken stone and chippings for repair of roads; also for about 400 yds. of kerbs and channels. Particulars and form of tender may be had on application to the Surveyor, Town Hall, Neston.

FEBRUARY 23.—**Sowerby Bridge.**—MATERIALS.—The U.D.C. invite tenders for the supply of materials. Forms of tender, etc., may be obtained on application to Mr. George E. Wrigley, Engineer's Office, Sowerby Bridge.

FEBRUARY 24.—**Aylesbury.**—FLINTS, ETC.—Bucks C.C. Highways Committee invite tenders for the supply and delivery of clean hand-picked field flints on main roads during the ensuing spring and summer. Mr. R. J. Thomas, County Surveyor, County Hall, Aylesbury.

FEBRUARY 24.—**Sheffield.**—ANNUAL CONTRACTS.—The Highway and Sewerage Committee of the City Council invite tenders for labour and materials for the year ending March 25, 1910. Particulars and forms of tender may be obtained, and samples of materials and workmanship inspected, at the offices of the City Engineer and Surveyor, Town Hall, Sheffield, on payment of the sum of 10s.

FEBRUARY 25.—**Durham.**—MATERIALS.—Durham County Lunatic Asylum Visiting Committee invite tenders for supplying the Asylum with articles. Forms and conditions of tender may be had on application at the office of the Steward, at the Asylum.

FEBRUARY 25.—**Hampton.**—MATERIALS.—Hampton U.D.C. invite tenders for the supply of materials. Forms of tender, etc., at the offices of the Council, Hampton, Middlesex.

FEBRUARY 25.—**Stafford.**—ANNUAL SUPPLIES.—The Corporation of Stafford invite tenders for the supply of stores and materials. Forms of tender may be had on application to Mr. W. Blackshaw, Borough Engineer, Borough Hall, Stafford, on payment of 5s. each.

FEBRUARY 25.—**Thame.**—GRANITE.—The R.D.C. of Thame invite tenders for the supply of about 3,000 tons of the best selected machine-broken Leicester or Clee Hill granite, Hartshill or Rowley Regis stones. Any further particulars and forms of tender may be obtained from the District Surveyor, Mr. John Goodenough, Thame.

FEBRUARY 26.—**Hartlepool.**—ROAD MATERIAL.—Hartlepool U.R.D.C. invite tenders for road material and leading same, as per particulars, obtainable from Mr. Burton, Road Surveyor, Greatham, *vid* Stockton-on-Tees.

FEBRUARY 26.—**Heaton Norris.**—MATERIALS, ETC.—The U.D.C. of Heaton Norris invite tenders for the supply and delivery of materials and stores. Forms of tender are to be obtained from Mr. F. W. Brooke, Clerk to the Council, Council Offices, Heaton Moor.

FEBRUARY 26.—**Swansea.**—STORES, STONE, IRONWORK, ETC.—The Council of the County Borough of Swansea invite tenders for stores, stone, ironwork, etc. Forms of tender, etc., may be obtained at the office of the Borough Surveyor, 13, Somerset-place, Swansea, and the Waterworks Engineer, Guildhall, Swansea.

FEBRUARY 27.—**Billesdon.**—GRANITE.—The R.D.C. invite tenders for the supply of granite. Forms may be obtained at office of Mr. W. E. Richardson, Clerk, 18, New-street, Leicester.

FEBRUARY 27.—**Bradford.**—STEEL GIRDER TRAM RAILS.—The Corporation invite tenders for the supply and delivery at Bradford of 700 tons of steel girder tram rails of the British Standard, Sect. No. 4. Drawing, etc., may be obtained at the office of Mr. W. H. S. Dawson, City Engineer and Surveyor, Town Hall, Bradford.

FEBRUARY 27.—**Cardiff.**—LIMESTONE.—Llandaff and Dinas Powis R.D.C. invite tenders for the supply of mountain limestone and team labour. Tenders are also invited for the supply of Clee Hill stone and for the supply of tools, castings, general ironmongery, and earthenware pipes. Forms may be obtained on application to the Surveyor, Mr. James Holden, A.M.Inst.C.E., at his office, 20, Park-place, Cardiff.

FEBRUARY 27.—**Carlisle.**—STORES, ETC.—The Corporation of Carlisle invite tenders for the supply of stores and materials, etc. Form of tender, etc., may be obtained at the office of Mr. Henry C. Marks, M.Inst.C.E., City Engineer and Surveyor, 36, Fisher-street, Carlisle.

FEBRUARY 27.—**Durham.**—MATERIALS, ETC.—Tenders are required for (1) road metal; (2) cartage and team labour; and (3) tools and stores, etc., for the Auckland and Chester Main Road District. Printed forms of tender may now be obtained at the County Surveyor's Office, Shire Hall, Durham.

FEBRUARY 27.—**Epsom.**—STORES.—Epsom U.D.C. invite tenders for the supply of stores, etc. Specifications, etc., may be obtained upon application to the Surveyor's Office, "Bromley Hurst," Church-street, Epsom.

FEBRUARY 27.—**Gildersome.**—GRANITE.—The U.D.C. invite tenders for the supply of granite required during the year 1909. Samples and prices to be forwarded to the Surveyor, Mr. W. Wilby, Council Offices, Gildersome.

FEBRUARY 27.—**Hucknall Torkard.**—MATERIALS.—Hucknall Torkard U.D.C. invite tenders for flags, kerbs, etc. Forms of tender may be had on application to the Surveyor, Mr. William Swann, at the Council Offices, Hucknall Torkard, from whom any further particulars can be obtained.

FEBRUARY 27.—**Larbert, Stirling.**—PAINTS, ETC.—For the District Asylum, Larbert. Tenders are invited for the supply of articles. Forms of tender and particulars may be had on application to Mr. John Lindsay, House Steward.

FEBRUARY 27.—**Pembroke.**—SUPPLIES.—The U.D.C. invite tenders for about one year's supply. Forms of tender can be obtained on application at office of Mr. J. C. Manly, Clerk to the Council, Town Hall, Ballsbridge, Pembroke, Co. Dublin.

FEBRUARY 27.—**Sheffield.**—MATERIALS.—The Watch Committee of the City Council invite tenders for oils, paints, cleaning materials, brushes, etc. Forms of tender, etc., may be obtained, and samples of materials and a copy specification inspected, on application at the office of the Chief Constable, Castle Green, on payment of the sum of 10s.

✱ FEBRUARY 27.—**Stepney.**—WORKS AND MATERIALS.—The Stepney B.C. invite tenders for supply of materials and execution of works. See advertisement in this issue for further particulars.

FEBRUARY 27.—**Swinton and Pendlebury.**—MATERIALS.—The Swinton and Pendlebury U.D.C. invite tenders for materials for the year. Specification, etc., may be obtained from Mr. H. Entwisle, Engineer and Surveyor, Council Offices, Swinton, Manchester.

FEBRUARY 27.—**Warrington.**—MATERIALS.—The Sanitary Works Committee invite tenders for the supply of materials for Longford Depôt. Samples of goods required may be seen, and specification and form of tender may be obtained, from Mr. R. Wilson, Manager, Longford Depôt, Warrington, on payment of 10s.

MARCH 1.—**Barrow-in-Furness.**—STORES.—The Corporation invite tenders for the supply of oils, engine-room stores, tools, ironmongery, etc., required at the Electricity Works during the year ending March 31, 1910. Forms of tender may be obtained, and samples of materials, etc., may be seen, on application to the Borough Electrical Engineer, at the Electricity Works.

MARCH 1.—**Bolton-upon-Dearne.**—MATERIALS.—The U.D.C. invite tenders for the supply of materials for the year. Form of tender may be obtained from Mr. J. Ledger Hawksworth, Clerk, Council Offices, Station-road, Bolton-upon-Dearne, Rotherham.

MARCH 1.—**Bolton.**—STORES.—The Tramways Committee invite tenders for materials and stores for the year. Forms, etc., may be obtained on application to Mr. Arthur A. Day, General Manager, Tramways Offices, Bradshaw-gate, Bolton.

MARCH 1.—**Carlisle.**—SUPPLY OF STORES, ETC.—The Gas Committee invite tenders for the supply of stores, etc. Forms, giving quantities, etc., will be supplied on application at the Gasworks.

MARCH 1.—**Edmonton.**—STEEL JOISTS.—The Edmonton U.D.C. invite tenders for the supply and delivery at Lower Edmonton Station of 60 tons or more or less of English steel joists. Forms of tender, etc., may be had on application to Mr. G. Eedes Eachus, M.Inst.C.E., Engineer to the Council.

MARCH 1.—**Erith.**—MATERIALS, ETC.—Erith U.D.C. invite tenders for the supply for the year of materials, etc. Form of contract may be seen, and forms of tender obtained, at the Offices of the Council.

MARCH 1.—**Leeds.**—ANNUAL CONTRACTS FOR STORES.—The Improvements Committee invite tenders for the supply of materials, etc. Copies of the schedules and forms of tender may be obtained at office of Mr. W. T. Lancashire, Municipal Buildings, Leeds.

MARCH 1.—**Margate.**—STORES.—For the supply of articles for year. Forms of tender, etc., can be obtained on application to Mr. E. A. Borg, Borough Engineer, 13, Grosvenor-place, Margate.

MARCH 1.—**Southampton.**—STORES, FITTINGS, ETC.—The Corporation invite tenders for the supply of

stores, fittings, etc., required in the Electricity and Tramways Departments. Specification and conditions to be obtained upon application to Mr. H. F. Street, General Manager, at the Tramway Offices, Above Bar-street, Southampton.

MARCH 1.—**Sutton-in-Ashfield.**—SLAG, ETC.—The U.D.C. invite tenders for the supply of tar macadam and broken slag. Form of tender and specification may be obtained from Mr. Walter Burn, A.M.Inst.C.E., Surveyor's Office, Sutton-in-Ashfield.

MARCH 1. — **Tenterden.** — ROAD MATERIALS.—The T.C. invite tenders for the supply of quartzite, basalt, or other approved macadam; also for mason's work in the Borough. Further particulars and forms of tender may be obtained of Mr. W. L. C. Turner, Borough Surveyor, Town Hall, Tenterden.

MARCH 1. — **Warrington.** — MATERIALS.—The Sanitary Works Committee of the County Borough of Warrington invite tenders for the supply of materials for a period of twelve months. Samples of goods required may be seen at, and specification and form of tender obtained from, the office of the Cleansing Superintendent Central Sanitary Depôt, Warrington, on payment of 10s. per section (such payment to be made at the Borough Treasurer's Office, Sankey-street).

MARCH 1. — **Whitley.** — ROAD MATERIAL.—Whitley and Monkseaton U.D.C. invite tenders for supply of whinstone, etc. Specifications can be seen, and forms of tender obtained, on application at the office of Mr. A. J. Roussell, A.M.Inst.C.E., Surveyor, Whitley Bay.

MARCH 2.—**Foleshill.**—SUPPLY OF GRANITE.—Foleshill R.D.C. invite tenders for the supply of granite. Forms of tender may be had on application to the Surveyor, Council Offices, Foleshill.

MARCH 2. — **King's Norton and Northfield.**—STORES.—The U.D.C. invite tenders for the supply of articles for the stores of the Council, at King's Heath and Selly Oak. Forms of tender may be obtained, and samples of all goods and materials may be seen, at the Council's Depôt, Silver-street, King's Heath.

MARCH 2.—**Leeds.**—MATERIALS.—The Sanitary Committee invite tenders for stores, etc. Further particulars and forms of tender may be obtained on application to Mr. J. J. Mann, Superintendent, Dock-street Depôt.

MARCH 2. — **Portland.** — BROKEN GRANITE. — The U.D.C. invite tenders for the supply of about 2,500 tons of 1½-in. or 2-in. broken granite or basalt for the year. Copies of specification, etc., may be obtained at the office of Mr. R. Stevenson Henshaw, C.E., Engineer and Surveyor, Council Offices, New-road, Portland.

MARCH 2. — **Smallburgh.**—ROAD MATERIALS.—The R.D.C. invite tenders for the supply of road materials. Further particulars and forms of tender may be obtained on application to the District Surveyor, Mr. W. L. Lewis, Stalham.

MARCH 3. — **Bingham.** — MATERIALS. — Bingham R.D.C. invite tenders for the supply of materials. Forms, giving full particulars, to be obtained at office of Mr. R. H. Beaumont, Clerk.

* MARCH 3. — **Fulham.**—ANNUAL CONTRACTS.—The Fulham B.C. invite tenders for supply of various stores, materials, etc., for a period of twelve months. See advertisement in this issue for further particulars.

MARCH 3.—**Goole.**—STORES AND MATERIALS.—For the supply of stores and materials for the Highways and Sewers Committee. Forms of tender, etc., may be obtained by applying to Mr. C. G. Bradley, Engineer and Surveyor.

MARCH 3.—**Hounslow.**—VARIOUS.—For the supply for one year of stores, etc. Forms of tender may be obtained from Mr. J. G. Carey, Surveyor, Council House, Hounslow, W.

MARCH 3. — **Hove.** — MATERIALS, ETC. — Particulars, forms of tender, and schedules may be obtained at the offices of the Borough Surveyor, Mr. H. H. Scott.

MARCH 3. — **Llandaff.**—SCAVENGING, ETC.—Llandaff and Dinas Powis R.D.C. invite tenders for works, etc., according to specifications, which may be obtained from Mr. M. Warren, Clerk, Park House, 20, Park-place, Cardiff.

MARCH 3.—**London.**—MATERIAL.—For the supply of about 12,000 tons (more or less) of 2-in. basalt or granite, 2,000 tons (more or less) of ½-in. chippings, for the Middlesex C.C. Particulars, etc., may be obtained at the offices of Mr. H. T. Wakelam, M.Inst.C.E., County Engineer and Surveyor, Middlesex Guildhall, Westminster, S.W.

MARCH 3.—**Northampton.**—ROAD MATERIALS.—The R.D.C. invite tenders for the supply of Hartshill, Groby, Tuttle Hill, Mount Sorrel, and other granite and slag. Mr. W. Tomalin, Clerk, 14, Guildhall-road, Northampton.

MARCH 6. — **Droitwich.**—GRANITE AND SLAG.—The Droitwich Corporation invite tenders for the supply of Rowley rag or other granite and slag for the year. Forms of tender, etc., may be obtained from Mr. Hy. Hulse, Borough Surveyor.

MARCH 6. — **Levenshulme.**—MATERIALS, ETC.—The U.D.C. of Levenshulme invite tenders for the supply and delivery of materials and stores. Specifications, etc., may be obtained from Mr. James Jepson, Mosley-chambers, 35, Great Underbank, Stockport, Surveyor to the Council.

MARCH 6.—**Manchester.**—MATERIALS.—Manchester Corporation (Withington Committee) invite tenders for the supply of materials for the period of twelve months. Forms of tender, etc., should be accompanied by a stamped addressed envelope, and addressed, as regards the Highways and Sewers Department, to the Surveyor, Town Hall, West Didsbury, Manchester, and for the Cleansing Department to the Cleansing Superintendent.

MARCH 8. — **Barnes.** — MATERIALS, ETC.—For the supply of materials for twelve months for the Barnes U.D.C. Particulars, etc., may be obtained of Mr. G. Bruce Tomes, A.M.Inst.C.E., Engineer and Surveyor, High-street, Mortlake, S.W.

MARCH 8.—**Bourne.**—GRANITE.—Bourne U.D.C. invite tenders for the supply of 600 tons of granite. Mr. S. R. Andrews, Clerk, Bourne.

MARCH 8.—**Ilford.**—MATERIALS.—For materials, etc., for twelve months, for the Ilford U.D.C. Forms of tender, etc., may be obtained on application at the Surveyor's Department, Town Hall, Ilford.

MARCH 8. — **London.** — MATERIALS, ETC. — For materials, etc., for one year, for the Penge U.D.C Forms of tender, etc., may be obtained on application to the Surveyor, Town Hall, Anerley, S.E.

MARCH 8.—**London.**—WORKS, ETC.—For the supply of works and articles from March 31, for the Finsbury B.C. Particulars and forms of tender may be had on application at the Borough Surveyor's Department, Town Hall, Rosebery-avenue, E.C.

MARCH 9.—**Bath.**—MATERIALS, ETC.—The Bath City Council invite tenders for work, materials, etc., for one or three years. Printed forms can be obtained on payment of 1s. for each form at the City Surveyor's office.

MARCH 9.—**Colne (Lancs).**—MATERIALS, ETC.—For supply and delivery of materials for twelve months. Specifications, etc., may be obtained on application at the office of the Borough Surveyor, Mr. T. H. Hartley.

MARCH 9.—**Leeds.**—ANNUAL CONTRACTS FOR STORES.—The Sewerage Committee invite tenders for the supply of goods during the twelve months. Copies of the specification may be seen, and forms of tender obtained, at office in the Municipal Buildings of Mr. W. T. Lancashire, City Engineer, Leeds.

MARCH 9.—**Wembley.**—FOR SUPPLIES.—The U.D.C invite tenders for the supply of materials for the year. Forms of tenders and schedules can be obtained from Mr. Fredk. W. Rodd, Clerk to the Council, Public Offices, Wembley, by forwarding a stamped addressed envelope.

MARCH 10. — **South Dublin.**—ANNUAL SUPPLIES.—The Guardians invite tenders for supplies for twelve months. Printed forms can be had from the Master of the Workhouse.

MARCH 10. — **South Shields.** — STORES.—The Corporation invite tenders for the supply for their Electricity Works, West Holborn, of materials, etc. Conditions, etc., may be seen, and all information obtained, on application to Mr. J. H. Cawthra, M.Inst.E.E., Borough Electrical Engineer, West Holborn, South Shields.

MARCH 11. — **Bishop's Stortford.** — ANNUAL CONTRACTS.—The U.D.C. invite tenders for the supply of materials. Specifications, forms of tender, etc., may be obtained on application to Mr. Thos. Swatheridge, Clerk, Council Offices, 7, North-street, Bishop's Stortford.

MARCH 15. — **Sleaford.**—GRANITE AND SLAG.—Sleaford U.D.C. invite tenders for the supply of 1,500 tons of broken X, XX, and XXX granite, and 200 tons of slag. Printed forms of tender may be obtained on application to Mr. Edmund Clements, Clerk, Council Offices, Sleaford, by enclosing a fully stamped addressed foolscap envelope.

MARCH 17. — **Strood.** — MATERIALS, ETC.—Strood R.D.C. invite tenders for highway materials and carting. Full particulars, etc., may be obtained on application to the Surveyor, Mr. L. Randerson, of Meopham, near Gravesend.

MARCH 22. — **Eccles (Lancs).** — ROAD MATERIALS, ETC.—For the supply of materials during year. Forms of tender, etc., may be obtained on application to Mr. Thomas S. Picton, C.E., Borough Engineer, Eccles.

NO DATE. — **Gainsborough.** — ROAD METAL. — The R.D.C. of Gainsborough invite tenders for the supply of road metal. Specifications, etc., may be obtained on application to Mr. Richard Maxwell, Surveyor, Lea-road, Gainsborough.

NO DATE.—**Keighley.**—TILES.—Tenders are invited for the bricks and aerating floor tiles required for the proposed sewage disposal works. Further particulars may be obtained from Mr. Walter Fowlds, A.M.Inst.C.E., Borough Engineer.

## Public Appointments.

| Nature of Appointment. | By whom Advertised. | Salary. | Application to be in |
|---|---|---|---|
| *BOROUGH ENGINEER AND SURVEYOR | South Shields Town Council | 400*l.* per annum | Feb. 22 |
| *CLERK OF WORKS | Chelsea Borough Council | 4*l.* 4s. per week | Feb. 25 |
| *INSPECTOR OF NUISANCES | Cambridge U.D.C. | 120*l.* per annum | Feb. 27 |
| *ASSISTANT INSTRUCTORS IN HANDICRAFT (WOODW'K.) | London County Council | 80*l.* per annum | do. |
| *SANITARY INSPECTORS (THREE) | Bermondsey Boro. Council | 130*l.* per annum | March 1 |

## Auction Sales.

| Nature and Place of Sale. | By whom Offered. | Date of Sale. |
|---|---|---|
| *DEALS, BATTENS, ETC.—Great Hall, Winchester House, Old Broad-street, E.C. | Churchill & Sims | Feb. 24 |
| *NURSERY STOCK, GROOMBRIDGE, NEAR TUNBRIDGE WELLS—On the Premises | Protheroe & Morris | Feb. 25 |
| *BUILDERS' AND SHOPFITTERS' PLANT AND STOCK—At 121, Bunhill-row, E.C. | J. Hibbard & Sons | March 2-3 |
| *FREEHOLD BUSINESS PREMISES—Beaconsfield, Bucks | J. & R. Rolfe | March 3 |
| *FREEHOLD BUILDING LAND, BLACKHEATH—At the Mart | Debenham, Tewson, Richardson, & Co. | March 9 |
| *FREEHOLD LAND, NEW MALDON—At the Mart | Chesterton & Sons | March 11 |
| *FREEHOLD BUILDING LAND, FINCHLEY—At the Torrington Hotel, North Finchley | Charles Sparrow & Son | March 29 |

## Patents.

APPLICATIONS PUBLISHED.*

1,237 of 1908.—James Farley: Domestic stoves.

4,921 of 1908.—Percy Schletter: Domestic and like firegrates.

5,424 of 1908.—Henry Harrison: Hoods for chimneys and ventilating shafts.

6,044 of 1908.—Lionel Henry Teale: Domestic fireplaces.

* All these applications are in the stage in which opposition to the grant of patents upon them can be made.

6,829 of 1908.—William Newman & Sons, Ltd., and George Frederick Newman: Swing-door closers.

1,385 of 1908.—Mackenzie & Moncur, Ltd., and Lachlan Paterson Mackenzie: Surface-water gully traps.

1,339 of 1908.—Charles Bonnefont: Manufacture of artificial stones.

1,686 of 1908.—Thomas William Yardley: Street gullies and the like.

15,247 of 1908.—John Lehner and Herman Buchal: Safety lock.

15,579 of 1908.—Hans Büchler: Self-acting sluice or weir gates.

19,978 of 1908.—Wallace William Newbold: Casement stays.

21,534 of 1908.—Frederick Richard Roach Jewell Pearce: Water cisterns and fittings therefor.

22,311 of 1908.—Charles Haynes: Casement and like stays.

18,242 of 1908.—Everett Sheridan Stanclift: Window screens.

11,190 of 1908.—Burnaby Green: Hangers for supporting centering as used in making concrete floors and the like.

21,241 of 1908.—Gustav Lolat: Girder with detachable flange.

24,588 of 1908.—Frederick Dashwood: Bricks and other building blocks.

24,684 of 1908.—William Cullen Stewart: Work supports.

## SOME RECENT SALES OF PROPERTY:

### ESTATE EXCHANGE REPORT.

February 2.—By CHARLES F. COOKSEY (at Trowbridge).

| | |
|---|---|
| Hilperton, Wilts.—Hilperton Marsh, freehold pasture and arable land, 2 acres | £213 |
| Two cottages, and pasture, 4 a. 1 r. 29 p., f. | 905 |
| Trowbridge, Wilts.—19, Silver-st., and 52, Church-st., (s.), f. y.r. 53*l.* | 550 |
| Bradford-on-avon, Wilts. — Poulton Farm 40 a. 1 r. 19½ p. f. | 1,875 |
| Winsley, Wilts.—Freehold pasture land, 22 a. 0 r. 23 p. | 580 |
| Road, Somerset. — Freehold arable and pasture 12 a. 3 r. 14 p. | 810 |
| Frith's Farm, 15 a. 0 r. 20 p., f. | 900 |
| Tellisford, Somerset.—Freehold pasture, 6 a. 2 r. 8 p. | 320 |
| Beckington, Somerset.—Freehold pasture, 4 a. 2 r. 39 p. | 275 |

February 6.—By FENN & Co. (at Colchester).

| | |
|---|---|
| Ardleigh, Essex.—Clarke's Farm, 63 a. 3 r. 8 p., f. and c. | 1,400 |

February 8.—By JENKINS, SONS, & WEBSTER (at Lewisham).

| | |
|---|---|
| Brockley.—Brockley-rd., Brockley House, u.t. 50 yrs., g.r. 6*l.*, p. | 725 |
| New Cross.—Rokeby-rd, a freehold plot | 320 |

February 9.—By BALCH & BALCH.

| | |
|---|---|
| Lee.—19, Osberton-rd., u.t. 55 yrs., g.r. 8*l.*, p. | 250 |

By FORTESCUE & BRANSON.

| | |
|---|---|
| Ealing.—1, Vera-ter., f., y.r. 40*l.* | 500 |
| Fulham.—1, Woodlawn-rd., f., w.r. 46*l.* 16s. | 365 |
| 25 45 and 47, Ellerby-st., u.t. 92 yrs., g.r. 21*l.*, w.r. 159*l.* 18s. | 1,155 |
| 71, Finlay-st., u.t. 93 yrs., g.r. 7*l.*, w.r. 54*l.* 12s. | 350 |

By NICHOLSON, GREAVES, BARBER & HASTINGS (at Sheffield).

| | |
|---|---|
| Hillsborough, Yorks.—172, Dykes Hall-rd., f. | 530 |
| 174 to 180 (even), Dykes Hall-rd., u.t. 784 yrs., g.r. 10*l.*, y.r. 88*l.* | 1,110 |
| Sheffield, Yorks.—29 to 37 (odd), Gertrude-st. and slaughter-house, u.t. 861 yrs., g.r. 9*l.* 14s. 4d., gross rental 78*l.* 5s. | 670 |

*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. public-house; o. for offices; s. for shops; ct. for court.

## PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

### BRICKS, &c.

| | £ | s. | d. | |
|---|---|---|---|---|
| Best Stocks | 1 | 6 | 6 | per 1000 alongside, in river. |
| Picked Stocks for Facings | 2 | 10 | 0 | ,, delivered |
| Flettons | 1 | 4 | 6 | ,, at railway depôt. |
| Best Fareham Red | 3 | 12 | 0 | ,, ,, ,, |
| Best Red Pressed Ruabon Facing | 5 | 0 | 0 | ,, ,, ,, |
| Best Blue Pressed Staffordshire | 3 | 15 | 0 | ,, ,, ,, |
| Do. Bullnose | 4 | 0 | 0 | ,, ,, ,, |
| Best Stourbridge Fire Bricks | 3 | 14 | 0 | ,, ,, ,, |

GLAZED BRICKS.

| | | | | |
|---|---|---|---|---|
| Best White and Ivory Glazed Stretchers | 10 | 7 | 6 | ,, ,, ,, |
| Headers | 9 | 17 | 6 | ,, ,, ,, |
| Quoins, Bullnose, and Flats | 13 | 17 | 6 | ,, ,, ,, |
| Double Stretchers | 15 | 17 | 6 | ,, ,, ,, |
| Double Headers | 12 | 17 | 6 | ,, ,, ,, |
| One Side and two Ends | 16 | 17 | 6 | ,, ,, ,, |
| Two Sides and one End | 17 | 17 | 6 | ,, ,, ,, |
| Splays, Chamferred, Squints | 15 | 10 | 0 | ,, ,, ,, |
| Best Dipped Salt Glazed Stretchers | 10 | 7 | 6 | ,, ,, ,, |
| Headers | 9 | 17 | 6 | ,, ,, ,, |
| Quoins, Bullnose, and Flats | 13 | 17 | 6 | ,, ,, ,, |
| Double Stretchers | 15 | 17 | 6 | ,, ,, ,, |
| Double Headers | 12 | 17 | 6 | ,, ,, ,, |
| One Side and two Ends | 16 | 17 | 6 | ,, ,, ,, |
| Two Sides and one End | 17 | 17 | 6 | ,, ,, ,, |
| Splays, Chamferred, Squints | 15 | 10 | 0 | ,, ,, ,, |
| Second Quality White and Dipped Salt Glazed | 1 | 5 | 0 | ,, less than best. |

| | s. | d. | |
|---|---|---|---|
| Thames and Pit Sand | 6 | 6 | per yard, delivered. |
| Thames Ballast | 5 | 0 | ,, ,, |
| Best Portland Cement | 28 | 0 | per ton, ,, |
| Best Ground Blue Lias Lime | 19 | 0 | ,, ,, |

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 11s. 6d. per yard, delivered.
tourbridge Fireclay in sacks 27s. 0d. per ton at rly. dpt

### STONE.

| | s. | d. | |
|---|---|---|---|
| BATH STONE—delivered on road waggons, Paddington Depôt | 1 | 6½ | per ft. cube. |
| Do. do. delivered on road waggons, Nine Elms Depôt | 1 | 8½ | ,, ,, |
| PORTLAND STONE (20 ft average)— | | | |
| Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf | 2 | 1 | ,, ,, |
| White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf | 2 | 2½ | ,, ,, |

| | s. | d. | |
|---|---|---|---|
| Ancester in blocks | 1 | 10 | per ft. cube deld. rly. depôt |
| Beer ,, | 1 | 6 | ,, ,, |
| Greenshill ,, | 1 | 10 | ,, ,, |
| Darley Dale in blocks | 2 | 4 | ,, ,, |
| Red Corsehill ,, | 2 | 2 | ,, ,, |
| Closeburn Ree Freestone | 2 | 0 | ,, ,, |
| Red Mansfield ,, | 2 | 4 | ,, ,, |

YORK STONE—*Robin Hood Quality.*

| | s. | d. | |
|---|---|---|---|
| Scappled random blocks | 2 | 10 | per ft. cube, deld. rly. dep |
| 6 in. sawn two sides landings to sizes (under 40 ft. super.) | 2 | 3 | per ft. super ,, |
| 6 in. rubbed two sides ditto, ditto | 2 | 6 | ,, ,, |
| 3 in. sawn two sides slabs (random sizes) | 0 | 11½ | ,, ,, |
| 2 in to 2½ in. sawn one side slabs (random sizes) | 0 | 7½ | ,, ,, |
| 1½ in. to 2 in. ditto, ditto | 0 | 6 | ,, ,, |
| HARD YORK— | | | |
| Scappled random blocks | 3 | 0 | per ft. cube. ,, |
| 6 in. sawn two sides landings to sizes (under 40 ft. super.) | 2 | 8 | per ft. super. ,, |
| 6 in. rubbed two sides ditto | 3 | 0 | ,, ,, |
| 3 in. sawn two sides slabs (random sizes) | 1 | 2 | ,, ,, |
| 2 in. self-faced random flags | 0 | 5 | ,, ,, |

### SLATES.

| In. In. | £ | s. | d. | |
|---|---|---|---|---|
| 20×10 best blue Bangor | 13 | 2 | 6 | per 1000 of 1200 at r.d. |
| 20×12 ,, ,, | 13 | 17 | 6 | ,, ,, |
| 20×10 first quality ,, | 13 | 0 | 0 | ,, ,, |
| 20×12 ,, ,, | 13 | 15 | 0 | ,, ,, |
| 16×8 ,, ,, | 7 | 5 | 0 | ,, ,, |
| 22×10 best blue Portmadoc | 12 | 12 | 6 | ,, ,, |
| 16×8 ,, ,, | 6 | 12 | 6 | ,, ,, |
| 20×10 best Eureka unfading green | 15 | 17 | 6 | ,, ,, |
| 20×12 ,, ,, | 18 | 7 | 6 | ,, ,, |
| 18×10 ,, ,, | 13 | 5 | 0 | ,, ,, |
| 16×8 ,, ,, | 10 | 5 | 0 | ,, ,, |
| 20×10 permanent green | 11 | 12 | 6 | ,, ,, |
| 18×10 ,, ,, | 9 | 12 | 6 | ,, ,, |
| 66×8 ,, ,, | 6 | 12 | 6 | ,, ,, |

### TILES.

| | | | |
|---|---|---|---|
| Best plain red roofing tiles | 42 | 0 | per 1000, at rly depôt. |
| Hip and Valley tiles | 3 | 7 | per doz. ,, |
| Best Broseley tiles | 50 | 0 | per 1000 ,, |
| Do. Ornamental tiles | 52 | 6 | ,, ,, |
| Hip and Valley tiles | 4 | 0 | per doz. ,, |
| Best Ruabon red, brown, or brindled do. (Edwards) | 57 | 6 | per 1000 ,, |
| Do. Ornamental do. | 60 | 0 | ,, ,, |
| Hip tiles | 4 | 0 | per doz. ,, |
| Valley tiles | 3 | 0 | ,, ,, |
| Best Red or Mottled Staffordshire do. (Peakes) | 51 | 9 | per 1000 ,, |
| Do. Ornamental do. | 54 | 6 | ,, ,, |
| Hip tiles | 4 | 1 | per doz. ,, |
| Valley tiles | 3 | 8 | ,, ,, |
| Best "Rosemary" brand plain tiles | 48 | 0 | per 1000 ,, |
| Best Ornamental tiles | 50 | 0 | ,, ,, |
| Hip tiles | 4 | 0 | per doz. ,, |
| Valley tiles | 3 | 8 | ,, ,, |
| Best "Hartshill" brand plain tiles, sand-faced | 50 | 0 | per 1000 ,, |
| Do. pressed | 47 | 6 | ,, ,, |
| Do. Ornamental do. | 50 | 0 | ,, ,, |
| Hip tiles | 4 | 0 | per doz. ,, |
| Valley tiles | 3 | 6 | ,, ,, |
| Staffordshire (Hanley) Reds or Brindled tiles | 42 | 6 | per 1000 ,, |
| Hand-made sand-faced | 45 | 0 | ,, ,, |
| Hip tiles | 4 | 0 | per doz. ,, |
| Valley tiles | 3 | 6 | ,, ,, |

### WOOD.

| BUILDING WOOD. | At per standard. £ | s. | d. | £ | s. | d. |
|---|---|---|---|---|---|---|
| Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in. | 13 | 10 | 0 | 15 | 0 | 0 |
| Deals: best 3 by 9 | 13 | 0 | 0 | 14 | 0 | 0 |
| Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in. | 11 | 0 | 0 | 12 | 0 | 0 |
| Battens: best 2½ by 6 and 3 by 6 | 0 | 10 | 0 | less than 7 in. and 8 in. | | |
| Deals: seconds | 1 | 0 | 0 | less than best. | | |
| Battens: seconds | 0 | 10 | 0 | ,, | | |
| 2 in. by 4 in. and 2 in. by 6in. | 9 | 0 | 0 | 10 | 0 | 0 |
| 2 in. by 4½ in. and 2 in. by 5 in. | 8 | 10 | 0 | 9 | 10 | 0 |
| Foreign Sawn Boards— | | | | | | |
| 1 in. and 1¼ in by 7 in. | 0 | 10 | 0 | more than battens. | | |
| ¼ in. | 1 | 0 | 0 | ,, | | |
| Fir timber: best middling Danzig or Memel (average specification) | At per load of 50 ft. 4 | 10 | 0 | 5 | 0 | 0 |
| Seconds | 4 | 0 | 0 | 4 | 10 | 0 |
| Small timber (8 in. to 10 in.) | 3 | 12 | 6 | 3 | 15 | 0 |
| Small timber (6 in. to 8 in.) | 3 | 0 | 0 | 3 | 10 | 0 |
| Swedish balks | 2 | 10 | 0 | 3 | 0 | 0 |
| Pitch-pine timber (30 ft. average) | 4 | 0 | 0 | 4 | 15 | 0 |

### WOOD (*continued*).

| JOINERS' WOOD. | At per standard. £ | s. | d. | £ | s. | d. |
|---|---|---|---|---|---|---|
| White Sea: first yellow deals, 3 in. by 11 in. | 24 | 0 | 0 | 25 | 0 | 0 |
| 3 in. by 9 in. | 22 | 0 | 0 | 23 | 0 | 0 |
| Batten 2½ in. and 3 in. by 7 in. | 16 | 10 | 0 | 18 | 0 | 0 |
| White Sea: second yellow deals, 3 in. by 1 in. | 18 | 10 | 0 | 20 | 0 | 0 |
| 3 in. by 9 in. | 17 | 10 | 0 | 19 | 0 | 0 |
| Battens, 2½ in. and 3 in. by 7 in. | 13 | 10 | 0 | 14 | 10 | 0 |
| Third yellow deals, 3 in. by 11 in. and 9 in. | 13 | 10 | 0 | 15 | 0 | 0 |
| Battens, 2½ in. and 3 in. by 7 in. | 11 | 0 | 0 | 12 | 0 | 0 |
| Petersburg first yellow deals, 3 in. by 11 in. | 21 | 0 | 0 | 22 | 10 | 0 |
| Do. 3 in. by 9 in. | 18 | 0 | 0 | 19 | 10 | 0 |
| Battens | 13 | 10 | 0 | 15 | 0 | 0 |
| Petersburg second yellow deals, 3 in. by 11 in. | 16 | 0 | 0 | 17 | 0 | 0 |
| Do. 3 in. by 9 in. | 14 | 10 | 0 | 16 | 0 | 0 |
| Battens | 11 | 0 | 0 | 12 | 10 | 0 |
| Third yellow deals, 3 in. by 11 in. | 13 | 0 | 0 | 14 | 0 | 0 |
| Do. 3 in. by 9 in. | 12 | 10 | 0 | 14 | 0 | 0 |
| Battens | 10 | 0 | 0 | 11 | 0 | 0 |
| White Sea and Petersburg— | | | | | | |
| First white deals, 3 in. by 11 in. | 14 | 10 | 0 | 15 | 10 | 0 |
| ,, ,, 3 in. by 9 in. | 13 | 10 | 0 | 14 | 0 | 0 |
| Battens | 11 | 0 | 0 | 12 | 0 | 0 |
| Second white deals, 3 in. by 11 in. | 13 | 10 | 0 | 14 | 10 | 0 |
| ,, ,, 3 in. by 9 in. | 12 | 10 | 0 | 13 | 10 | 0 |
| Battens | 10 | 0 | 0 | 11 | 0 | 0 |
| Pitch-pine: deals | 18 | 0 | 0 | 21 | 0 | 0 |
| Under 2 in. thick extra | 0 | 10 | 0 | 1 | 0 | 0 |
| Yellow pine—First, regular sizes | 44 | 0 | 0 | upwards. | | |
| Oddments | 32 | 0 | 0 | ,, | | |
| Seconds, regular sizes | 33 | 0 | 0 | ,, | | |
| Oddments | 28 | 0 | 0 | ,, | | |
| Kauri Pine - Planks, per ft. cube | 0 | 3 | 6 | 0 | 5 | 0 |
| Danzig and Stettin Oak logs— Large, per ft. cube | 0 | 3 | 0 | 0 | 3 | 9 |
| Small ,, ,, | 0 | 2 | 6 | 0 | 2 | 6 |
| Wainscot Oak Logs, per ft. cube | 0 | 5 | 6 | 0 | 6 | 0 |
| Dry Wainscot Oak, per ft. sup. as inch | 0 | 0 | 8½ | 0 | 0 | 9½ |
| ¼ in. do. do | 0 | 0 | 7 | — | | |
| Dry Mahogany—Honduras, Tabasco, per ft. super. as inch | 0 | 0 | 9 | 0 | 1 | 0 |
| Selected, Figury, per ft. super. as inch | 0 | 1 | 6 | 0 | 2 | 6 |
| Dry Walnut, American, per ft. super, as inch | 0 | 0 | 10 | 0 | 1 | 0 |
| Teak per load | 17 | 0 | 0 | 22 | 0 | 0 |
| American Whitewood Planks, per ft. cube | 0 | 4 | 0 | 0 | 5 | 0 |

| Prepared Flooring, etc.— | Per square. | | | | | |
|---|---|---|---|---|---|---|
| 1 in. by 7 in. yellow, planed and shot | 0 | 13 | 6 | 0 | 17 | 0 |
| 1 in. by 7 in. yellow, planed and matched | 0 | 4 | 0 | 0 | 18 | 0 |
| 1¼ in. by 7 in. yellow, planed and matched | 0 | 16 | 0 | 1 | 0 | 0 |
| 1 in. by 7 in. white, planed and shot | 0 | 12 | 0 | 0 | 14 | 6 |
| 1 in. by 7 in. white, planed and matched | 0 | 12 | 6 | 0 | 15 | 0 |
| 1¼ in. by 7 in. white, planed and matched | 0 | 15 | 0 | 0 | 16 | 6 |
| ¾ in. by 7 in. yellow matched and beaded or V-jointed brds. | 0 | 11 | 0 | 0 | 13 | 6 |
| 1 in. by 7 in. ,, ,, | 0 | 14 | 0 | 0 | 18 | 0 |
| ¾ in. by 7 in. white ,, ,, | 0 | 10 | 0 | 0 | 11 | 6 |
| 1 in. by 7 in. ,, ,, | 0 | 12 | 9 | 0 | 15 | 0 |

6 in. at 6d. to 9d. per square less than 7in.

### JOISTS, GIRDERS, &c.

| | In London, or delivered Railway Vans, per ton. £ | s. | d. | £ | s. | d. |
|---|---|---|---|---|---|---|
| Rolled Steel Joists, ordinary sections | 7 | 0 | 0 | 7 | 10 | 0 |
| Compound Girders, ordinary sections | 9 | 0 | 0 | 10 | 0 | 0 |
| Steel Compound Stanchions | 11 | 0 | 0 | 2 | 0 | 0 |
| Angles, Tees, and Channels, ordinary sections | 9 | 0 | 0 | 10 | 0 | 0 |
| Flitch Plates | 9 | 0 | 0 | 9 | 10 | 0 |
| Cast Iron Columns and Stanchions including ordinary patterns | 7 | 10 | 0 | 8 | 10 | 0 |

### METALS.

| IRON— | Per ton, in London. £ | s. | d. | £ | s. | d. |
|---|---|---|---|---|---|---|
| Common Bars | 8 | 10 | 0 | 9 | 0 | 0 |
| Staffordshire Crown Bars, good merchant quality | 8 | 15 | 0 | 9 | 5 | 0 |
| Staffordshire "Marked Bars" | 10 | 10 | 0 | | — | |
| Mild Steel Bars | 8 | 15 | 0 | 9 | 5 | 0 |
| Hoop Iron, basis price | 9 | 5 | 0 | 9 | 10 | 0 |
| ,, ,, Galvanised | 17 | 0 | 0 | | — | |

(*And upwards, according to size and gauge.)

| | | | | | | |
|---|---|---|---|---|---|---|
| Sheet Iron Black— | | | | | | |
| Ordinary sizes to 20 g. | 9 | 15 | 0 | | — | |
| ,, ,, 24 g. | 10 | 15 | 0 | | — | |
| ,, ,, 26 g. | 12 | 5 | 0 | | — | |
| Sheet Iron, Galvanized, flat, ordinary quality— | | | | | | |
| Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g. | 15 | | 0 | | — | |
| Ordinary sizes to 22 g. and 24 g. | 15 | 10 | 0 | | — | |
| ,, ,, 26 g. | 1 | 10 | 0 | | — | |
| Sheet Iron, Galvanized, flat, best quality— | | | | | | |
| Ordinary sizes to 20 g. | 18 | 0 | 0 | | — | |
| ,, ,, 22 g. and 4 g. | 18 | 10 | 0 | | — | |
| ,, ,, 26 g. | 20 | 0 | 0 | | — | |
| Galvanised Corrugated Sheets— | | | | | | |
| Ordinary sizes, 6 ft. to 8 ft. 20 g. | 14 | 10 | 0 | | — | |
| ,, ,, 22 g. and 24 g. | 14 | 15 | 0 | | — | |
| ,, ,, 26 g. | 16 | 5 | 0 | | — | |
| Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker | 12 | 0 | 0 | | — | |
| Best Soft Steel Sheets, 22 g. & 24 g. | 13 | 0 | 0 | | — | |
| ,, ,, ,, 26 g. | 15 | 0 | 0 | | — | |
| Cut Nails, 3 in. to 6 in. | 10 | 10 | 0 | 11 | 0 | 0 |

(Under 3 in., usual trade extras.)

| LEAD, &c. | Per ton, in London. £ | s. | d. | £ | s. | d. |
|---|---|---|---|---|---|---|
| LEAD—Sheet, English, 3lb. and up. | 16 | 15 | 0 | | — | |
| Pipe in coils | 17 | 5 | 0 | | — | |
| Soil pipe | 19 | 5 | 0 | | — | |
| Compo pipe | 20 | 5 | 0 | | — | |

LEAD, &c. (*continued*).

| | Per ton, in London. £ s. d. | £ s. d. |
|---|---|---|
| ZINC—Sheet— | | |
| Vielle Montagne | 26 10 0 ... | — |
| Silesian | 26 5 0 ... | — |
| COPPER— | | |
| Strong sheet ...per lb. | 0 1 0 ... | — |
| Thin » | 0 1 1 ... | — |
| Copper nails » | 0 0 10 ... | — |
| Copper wire » | 0 0 10 ... | — |
| BRASS— | | |
| Strong Sheet » | 0 0 11 ... | — |
| Thin » | 0 1 0 ... | — |
| TIN—English Ingots » | 0 1 5 ... | — |
| SOLDER—Plumbers » | 0 0 7 ... | — |
| Tinmans » | 0 0 9½ ... | — |
| Blowpipe » | 0 1 0 ... | — |

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

| | |
|---|---|
| 15 oz. thirds | 2½d. per ft. delivered. |
| » fourths | 1½d. » » |
| 21 oz. thirds | 3d. » » |
| » fourths | 2½d. » » |
| 26 oz. thirds | 4d. » » |
| » fourths | 3d. » » |
| 32 oz. thirds | 4½d » » |
| » fourths | 4¼d. » » |
| Fluted Sheet, 15 oz | 3½d. » » |
| » 21 oz. | 4½d. » » |

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

| | |
|---|---|
| ⅛ Hartley's | 2½d. per ft. delivered. |
| 3/16 » | 2⅝d. » » |
| ¼ » | 2⅞d. » » |
| Figured, Oxford Rolled and "Oceanic" Glass, white | 3½d. » » |
| » » tinted | 5d. » » |
| OTHER GLASS— | |
| "Arctic" Glass, white | 3½d. » » |
| » » tinted | 5d. » » |
| » » Ruby and opalescents | 1s. » » |

| OILS, &c. | | £ s. d. |
|---|---|---|
| Raw Linseed Oil in pipes | per gallon | 0 1 11 |
| » » » in barrels | » | 0 2 0 |
| » » » in drums | » | 0 2 3 |
| Boiled » in barrels | » | 0 2 3 |
| » » » in drums | » | 0 2 6 |
| Turpentine in Barrels | » | 0 2 7 |
| » in drums | » | 0 2 9 |
| Genuine Ground English White Lead | per ton | 21 0 0 |
| Red Lead, Dry | » | 20 0 0 |
| Best Linseed Oil Putty | per cwt. | 0 7 0 |
| Stockholm Tar | per barrel | 1 12 0 |

| VARNISHES, &c. | Per gallon. |
|---|---|
| Fine Pale Oak Varnish | 0 8 0 |
| Pale Copal Oak | 0 10 6 |
| Superfine Pale Elastic Oak | 0 12 6 |
| Fine Extra Hard Church Oak | 0 10 0 |
| Superfine Hard-drying Oak, for seats of Churches | 0 14 6 |
| Fine Elastic Carriage | 0 12 0 |
| Superfine Pale Elastic Carriage | 0 16 0 |
| Fine Pale Maple | 0 16 0 |
| Finest Pale Durable Copal | 0 18 0 |
| Extra Pale French Oil | 1 1 0 |
| Eggshell Flating Varnish | 0 18 0 |
| White Pale Enamel | 1 4 0 |
| Extra Pale Paper | 0 12 0 |
| Best Japan Gold Size | 0 10 6 |
| Best Black Japan | 0 16 0 |
| Oak and Mahogany Stain | 0 9 0 |
| Brunswick Black | 0 8 0 |
| Berlin Black | 0 16 0 |
| Knotting | 0 10 9 |
| French and Brush Polish | 0 10 6 |

## TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursday*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcement of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

ABERAVON (Port Talbot).—For erecting a parsonage-house, for the vicar. Mr. J. A. James, architect, Port Talbot. Quantities by architect:—

| | | | |
|---|---|---|---|
| J. Davies | £2,436 0 | W. H. Evans | £1,876 0 |
| M. Cox | 2,047 0 | E. G. Groom, Aberavon* | 1,865 0 |
| J. H. Maggs | 1,990 15 | | |
| D. Davies & Sons | 1,890 0 | | |

ABERDEEN.—For sewerage works, Regent-walk, and Whitehall-terrace, for the Town Council. Mr. W. Dyack, Burgh Surveyor, Town House, Aberdeen:—

*Regent-walk.*

A. McKay, 1, Springbank-terrace* .. £53 0 1

*Whitehall-terrace.*

Gall & Walker, 63, Richmond-street* £48 4 6

ABERDEEN. — For macadamising the section of Duthie-terrace, extending for a distance of 170 yds. north-westwards from Cranford-place, for the Town Council. Mr. W. Dyack, Burgh Surveyor, Town House, Aberdeen:—

J. Leith, jun., 321, Clifton-road .... £91 17 6

ACTON.—For diverting the existing West Boundary watercourse and laying about 2,200 of 2 ft. reinforced concrete tubes, for the Urban District Council. Mr. D. J. Ebbetts, Surveyor to the Acton Urban District Council:—

W. & C. French, Buckhurst Hill* £1,232 5 10½

ARMATHWAITE.—For erecting a mixed elementary school, for Cumberland Education Committee. Mr. G. Dale Oliver, F.R.I.B.A., County Architect, Carlisle:—

| | |
|---|---|
| Exors. of W. Grisenthwaite | £3,452 2 4 |
| J. Beaty | 3,153 8 0 |
| J. H. Reed & Sons | 2,973 0 0 |
| J. Laing & Sons | 2 791 19 7 |
| E. Musgrave, Court-street, Carlisle* | 2,729 4 0 |

BINGLEY.—For erecting a detached residence in Glen-road, Eldwick, for Mr. W. Rhodes Nunns, architect, Market-street, Bingley:—

| | |
|---|---|
| *Mason:* W. Wilcock, Stonelaigh, Queensbury* | £245 0 0 |
| *Joiner:* J. Driver, Keighley* | 140 0 0 |
| *Slater:* W. Thornton, Bingley* | 32 0 0 |
| *Plumber:* S. Rushworth, Shipley* | 66 0 0 |
| *Plasterer:* W. Holmes, Shipley* | 34 0 0 |
| *Painter:* J. Earnshaw, Bingley* | 12 14 6 |

CARSHALTON (Surrey).—For engineer's tools and workshop appliances, etc., at Children's Infirmary, for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-Chief:—

| | |
|---|---|
| S. Lund & Sons | £336 14 9 |
| C. Chapman & Co. | 292 1 0 |
| Dempster, Moore, & Co., Ltd. | 235 3 8 |
| Easterbrook, Allcard, & Co., Ltd. | 215 18 11 |
| Beck's Machinery Co. | 215 8 4 |
| A. Schove | 208 5 0 |
| W. Newbold & Co., Ltd., 107, Upper Thames-street, E.C.* | 204 1 3 |
| Lawler & Muirhead‡ | 198 13 3 |
| Britannia Engineering Co., Ltd.‡ | 197 10 4 |
| Burton, Griffiths, & Co.‡ | 189 5 0 |
| Selig, Sonenthal, & Co.‡ | 187 11 9 |
| F. A. Greene‡ | 165 13 2 |

‡ Informal.

HEMEL HEMPSTED.—For a boring at the waterworks pumping station, Marlowes, for the Borough Council. Mr. W. R. Locke, Waterworks Engineer, Town Hall, Hemel Hempsted. Quantities by the Engineer:—

Cheeld & Co., Chesham, Bucks.* .... £450 11 0

[Steam to be provided by the Corporation. Nineteen tenders received. Construction of well-head and pump connexions carried out departmentally.

LEPTON.—For the construction of about 340 yds. lineal 8-in. diameter earthenware sewer; also about 50 yds. lineal 6-in. diameter earthenware sewer, together with four lampholes and two manholes, from Chapel-hill to Highgate-lane, Lepton, for the Urban District Council. Messrs. Brook, Dransfield, & Dyson, engineers, 12-15, Estate-buildings, Huddersfield:—

| | |
|---|---|
| A. Firth | £119 10 0 |
| R. Turner | 107 0 6 |
| J. Hollingworth & Sons | 97 0 0 |
| A. Graham & Sons | 95 0 0 |
| A. Graham & Co. | 89 10 0 |
| Dawson & Jones | 88 19 6 |
| W. Waring & Sons | 84 16 0 |
| A. Moorhouse & Sons | 82 10 0 |
| W. & E. Smith | 80 0 0 |
| J. Wimpenny & Co. | 79 10 0 |
| Garside & Whiteley | 78 0 0 |
| H. Bray | 76 10 11 |
| J. W. Boothroyd | 76 0 0 |
| Bentley & Swift, Kirkheaton* | 73 18 8 |

[Engineer's estimate, £80]

LISCARD (Cheshire).—For erecting a masonic hall. Mr. J. W. B. Harding, architect, 16, Cook-street, Liverpool. Quantities by Mr. J. Close Williams, Q.S.A., 15, Haskesson-street, Liverpool:—

| | | | |
|---|---|---|---|
| F. H. Mayor & Co. | £3,625 0 | Dryland & Preston | £3,229 15 |
| J. Hills & Sons | 3,395 0 | Duthie & Dobson | 3,224 0 |
| P. Rothwell | 3,345 0 | A. Lloyd | 3,200 0 |
| Haigh & Co. | 3,287 0 | Hall & Jamieson | 3,197 0 |
| A. Popple | 3,274 0 | J. Bellis | 3,160 0 |
| J. Dolan & Sons | 3,273 0 | P. Tyson | 3,142 0 |
| J. Paterson | 3,270 0 | J. A. Kilestone | 3,107 10 |
| G. Parker & Son | 3,260 0 | T. Spencer | 3,060 0 |

LONDON.—For making-up of Frankfurt-road, Herne Hill, for the Camberwel l Borough Council:—

| | | | |
|---|---|---|---|
| J. W. Jerram | £958 18 8 | R. Dykes | £797 6 7 |
| T. Adams | 915 15 6 | Mowlem & Co. | 791 6 2 |
| W. Manders | 913 3 9 | A. L. Etheridge | 787 19 9 |
| E. & E. Iles | 894 19 3 | Wheeler & Co. | 779 12 0 |
| S. Hobman & Co. | 889 15 7 | W. Pearce | 765 10 6 |
| C. W. Killingback & Co. | 867 0 6 | Fry Bros. | 721 3 0 |
| H. Woodham & Sons | 830 7 9 | G. J. Anderson, 26, Lower North-street, Poplar, E.* | 717 13 0 |
| A. C. W. Hobman & Co. | 811 19 5 | | |

LONDON.—Supply of limes, cement, bricks, pipes, etc., for the St. Pancras Borough Council:—

| | At per ton. s. d. |
|---|---|
| Greaves, Bull, & Lakin, for blue lias lime (ground) | 16 0 |
| Greaves, Bull, & Lakin, for blue lias lime (lump) | 15 0 |
| Broad & Co., for grey stone lime (lump) | 17 8 |
| Young & Sons, for Stourbridge fireclay (ground) | 18 9 |
| Wakeley Bros., for Portland cement | 20 5 |
| | At per 1,000. |
| Leeds Fireclay Co., for blue bricks (pressed) | £3 9 6 |
| J. Knowles & Co., for blue bricks (unpressed) | 2 12 6 |
| Leeds Fireclay Co., for blue bricks (pressed and radiated) | 3 12 0 |
| Young & Sons, for best Stourbridge fire-bricks | 3 12 0 |
| Rushden Brick, etc., Co., for Rushden wire cuts, at any railway station in the Borough | 1 10 0 |

J. Knowles & Co., for pipes, bends, etc., at 60 and 2½ per cent. under standard price list.

Young & Sons, for closet pans and traps (London County Council pattern), at 2s. 9d. each; for Winser interceptors, 6-in. diameter, at 4s. each; 4-in. diameter, at 3s. each.

Lawford & Sons, for stoneware yard gullies, 6-in. square, at 1s. 4½d. each; back or side inlets, at 1s. 8½d. each; back and side inlets or two side inlets, at 2s. 0½d. each.

LONDON. — Supplies of miscellaneous articles for twelve months to the St. Pancras Borough Council:

King & Scarborough, for timber, at 10 per cent. under schedule prices.

Middleton Bros., for paints, at 30 per cent. under schedule prices.

F. How & Co., for oils, at 33⅓ per cent. under schedule prices.

S. Pontifex & Co., for smith's and founder's work, at 27½ and 2½ per cent. under schedule prices.

T. Sampson, for general ironmongery, at 40 per cent. under schedule prices.

J. Gibb & Co., for tools, at 40 per cent. under schedule prices.

LONDON.—Supply of granite kerbs, setts, broken granite, etc., for the St. Pancras Borough Council:—

J. Mowlem & Co., for 12 in. by 4 in. Aberdeen straight kerb, at 1s. 9d. per lin. ft.; for 12 in. by 4 in. Aberdeen flat circular kerb, at 2s.

W. Griffiths & Co., for 6 in. by 12 in. Guernsey straight edge kerb, at 1s. 5½. per ft.; for 6 in. by 12 in. Guernsey circular edge, at 1s. 7½d.; for 12 in. by 8 in. Guernsey flat circular kerb, at 2s.

J. Mowlem & Co., for 6 in. by 12 in. Aberdeen straight edge kerb, at 1s. 6d. per ft.; for 6 in. by 12 in. Aberdeen circular kerb, at 1s. 9d. per ft.

W. Griffiths & Co., for 6 in. by 12 in. Norwegian granite straight edge kerb, at 1s. 5½d. lin. ft.; for 6 in. by 12 in. Norwegian circular edge kerb, at 1s. 9½d. lin. ft.

W. Griffiths & Co., for Guernsey, etc., angle blocks, 24 in. radius, at 8s. each.

J. Mowlem & Co., for new Markfield or Mount Sorrell granite paving setts, 3 in. by 6 in., at 32s. 6d. per ton.

Enderby & Stoney-Stanton Granite Co., for new Enderby or Stoney-Stanton paving setts, 3 in. by 6 in., at 31s. per ton.

J. Mowlem & Co., for Guernsey, etc., paving setts, 5 in. by 7 in., at 24s. per ton.; for broken blue Guernsey granite, at 14s. 9d. cub. yd.

S. Trickett & Sons, for broken Bardon Hill granite, at 14s. 9d. cub. yd.; for broken Mount Sorrell granite, at 14s. 9d. cub. yd.; for broken Markfield granite, at 14s. 9d. cub. yd.

J. Mowlem & Co., for broken granite, 1-in. ring, at 12s. 9d. cub. yd.

W. Griffiths & Co., for Guernsey granite siftings, ¼-in. mesh, at 9s. 11d. cub. yd.; for Leicestershire granite siftings, ¼-in. mesh, at 10s. 6d. cub. yd.; for ditto, screened, at 10s. 6d. cub. yd.

Chittenden & Simmonds, Ltd., for Kentish rag stone, 2-in. rink, at 10s. 2d. cub. yd.

LONDON.—Supply of York paving and artificial paving slabs to the St. Pancras Borough Council:—

Brooks & Brooks, for 2½ in. York paving, at 5s. 9½d. per sq. yd.; 4 in. York landings, at 10s. per sq. yd.

Excelsior Patent Stone Co., for 2 in. new artificial paving slabs, at 3s. 1d. per sq. yd.

LONDON.—Accepted for the supply of articles and for work required for the equipment of the additional buildings at Colney Hatch Asylum, for the London County Council:—

| | |
|---|---|
| *Push valves:* Pryke & Palmer | £7 11 3 |
| *Insulators:* General Electric Co. | 1 17 6 |
| *Steel guards:* F. Braby & Co., Ltd. | 38 14 0 |
| *Top plates for guards:* J. Lysaght, Ltd. | 6 15 0 |
| *Wire panels:* J. Lysaght, Ltd. | 21 15 6 |
| *Wrought-iron fencing and gates:* Bayliss, Jones, & Bayliss | 200 10 7 |
| *Gate catches:* J. Gibbons | 3 13 6 |
| *Fitting eight half-padded rooms:* Pocock Bros. | 752 0 0 |
| *Counterpanes:* Williams & Thomas | 19 10 0 |
| *Pipe covering:* A. Haacke & Co., Ltd. | ‡150 0 0 |
| *Horsed vehicle for conveyance of food:* Day & Monk | 59 0 0 |

‡ Approximately.

LONDON.—For new school, Buxton-street, Whitechapel, for the London County Council:—

| | | | |
|---|---|---|---|
| F. & T. Thorne | £13,803 | J. Chessum & Sons | £12,404 |
| W. Shurmur & Sons, Ltd. | 13,082 | Perry & Co. (Bow), Ltd. | 12,048 |
| J. Appleby & Sons | 12,816 | E. Lawrance & Sons | 11,987 |
| L. H. & R. Roberts | 12,641 | Kirk & Randall | 11,944 |
| Patman & Fotheringham, Ltd. | 12,623 | C. P. Roberts & Co., 138, St. Paul's-road, Highbury‡ | 11,723 |
| McCormick & Sons | 12,512 | | |
| T. D. Leng | 12,508 | | |
| Killby & Gayford, Ltd. | 12,472 | | |

[The estimate of the architect (education), comparable with the tenders, is £12,491.]

‡ Recommended for acceptance.

LONDON.—For oil tank wagons, for the London County Council:—

| | | | |
|---|---|---|---|
| W. Moore & Co. | £150 0 | P. Wilson | £106 16 |
| Bayleys, Ltd. | 150 0 | T. Davies, Ltd. | 106 10 |
| Smith & Sons WagonCompany, Ltd. | 122 0 | Hayes & Son | 103 15 |
| P. Boswell & Sons | 115 15 | Pallett & Co. | 97 10 |
| Belle Isle Company, Ltd. | 115 0 | Lancaster & Co., BowTankWorks, London, E.* | 90 0 |

LONDON.—For drainage of Wylde Farm section, Hampstead Heath, for the London County Council:—

| | |
|---|---|
| Sutton & Co. | £216 13 5 |
| Northwich Brick & Terra Cotta Co., Ltd.‡ | 169 1 9 |
| J. H. Turner & Lisney | 162 6 2 |
| Hawkins & Co. | 157 19 0 |
| Ellistown Collieries‡ | 157 18 6 |
| Robinson & Dowler‡ | 156 4 0 |
| Hall & Co. (Croydon), Ltd. | 146 11 4 |
| R. Ballard | 146 3 8 |
| J. Knowles & Co. (Wooden Box), Ltd. | 145 8 4 |
| Young & Son | 141 12 8 |
| Albion Clay Co., Ltd. | 140 3 0 |
| Lawford & Sons | 138 17 6 |
| Leeds Fireclay Co., Ltd. | 136 7 4 |
| West Bros. | 135 12 8 |
| Broad & Co., Ltd. | 129 10 10 |
| Bagworth Brick Co., Ltd.‡ | 127 10 10 |
| Arlesey Brick Co. (Bearts), Ltd., No. 1 Wharf, G.N.R. Goods-yard, King's-cross | 126 2 0 |
| W. T. Lamb & Sons§ | — |

‡ Price for delivery at nearest railway station.

§ Incomplete.

[The Arlesley Brick Co. (Bearts), Ltd., offer to supply the pipes of various sizes at the undermentioned rates per thousand, viz.—2 in., 1*l.* 7s. 6d.; 3 in., 2*l.* 12s. 6d.; 4 in., 3*l.* 17s. 6d.; and 6 in., 6*l.* 5s. It was agreed that the tender of the Arlesey Brick Co. (Bearts), Ltd., King's-cross, London, for the supply, at the undermentioned rates per thousand, of pipes required for the drainage of the Wylde Farm section of Hampstead Heath, be accepted—2 in., 1*l.* 7s. 6d.; 3 in., 2*l.* 12s. 6d.; 4 in., 3*l.* 17s. 6d.; and 6 in., 6*l.* 5s.]

LONDON.—For heating Bolingbroke-road, Battersea, for the London County Council:—
H. J. Cash & Co., Ltd.* ..... £418

LONDON.—For heating Laxon-street, Bermondsey, for the London County Council:—
Korting Bros., Ltd.* ..... £472

LONDON.—For new boundary fence, Finsbury Park, for the London County Council:—

| | | | |
|---|---|---|---|
| Winter & Sons | £1,165 5 0 | J. Stenning & Son, Ltd. | £465 0 0 |
| J. T. Brooker, Ltd. | 554 10 0 | Rowland Bros. | 460 0 0 |
| A. T. Peyton | 535 7 6 | J. S. Elliott & Son | 457 0 0 |
| R. Batcheller | 517 10 0 | A. Turner & Son | 455 0 0 |
| J. Longley & Sons | 502 0 0 | M. Marshall | 438 0 0 |
| G. E. Pulford | 499 12 0 | J. & S. Agate, Ltd. | 419 16 3 |
| Millar's Karri & Jarrah Co. (1902), Ltd.‡ | 495 0 0 | E. C. White | 413 0 0 |
| W. Bowen | 490 0 0 | R. Mulford | 409 10 0 |
| B. Horton & Son | 486 10 0 | Fann, Davis, & Co. | 408 0 0 |
| W. Stenning & Son | 468 0 0 | G. Blay, Elmroad, New Malden, Surrey* | 399 0 0 |

‡ For Jarrah Wood.
[The estimate comparable with the tenders is £530.]

LONDON.—For providing and fixing two boilers and a low-pressure hot-water heating apparatus, and for the necessary builder's work, Teesdale-street, Bethnal-green, N.E., for the London County Council:—

| | |
|---|---|
| J. Wontner-Smith, Gray, & Co. | £788 0 0 |
| R. H. & J. Pearson, Ltd. | 714 0 0 |
| Beeson & Sons | 700 0 0 |
| G. Davis | 698 0 0 |
| B. Harlow & Son | 689 0 0 |
| Tilley Bros. | 676 0 0 |
| Cannon & Hefford | 659 0 0 |
| J. Defries & Sons, Ltd. | 604 0 0 |
| G. & E. Bradley, 77, Lever-street* | 573 0 0 |

MACCLESFIELD.—For heating and hot-water works, at the Infirm wards of the workhouse, for the Guardians. Messrs. Whittaker & Bradburn, architects, 19, King Edward-street, Macclesfield:—
B. Harlow & Sons, King Edward-street, Macclesfield* ..... £127 10 0

PONTYPRIDD.—For private street works, lane at rear of East-street, for the Urban District Council. Mr. P. R. A. Willoughby, Engineer and Surveyor, Pontypridd:—
A. G. Collins & Co., Cadoxton, Barry* .. £91 12 5

PORTSMOUTH.—For residence for medical superintendent, assistant medical officer's quarters, and extension of nurses' home at the Workhouse infirmary. Messrs. Rake & Cogswell, architects, Portsmouth. Quantities by Mr. C. W. Ball, Portsmouth:—

| | | | |
|---|---|---|---|
| H. Jones | £6,590 | Crockerell | £5,921 |
| Porter | 6,455 | Tanner | 5,900 |
| Sprigings | 6,370 | Colthemp | 5,750 |
| Dowdell | 6,154 | Corke | 5,689 |
| Payne | 6,125 | Privett* | 5,267 |
| Light & Sons | 5,992 | | |

[All of Portsmouth.]

PORTSMOUTH.—For rebuilding business premises, Commercial-road, Portsmouth, for Timothy White Co. Messrs. Rake & Cogswell, Portsmouth, architects:—
Mr. J. Croad, Portsmouth* ..... £3,314 12 0

PORTSMOUTH.—For additions to the Jewish synagogue, Portsmouth, for Alderman Leon Emanuel, J.P. Messrs. Rake & Cogswell, architects, Portsmouth:—

| | | | |
|---|---|---|---|
| Salter | £1,375 | Croad | £1,280 |
| Crockerell | 1,322 | Jones | 1,267 |
| Corke | 1,308 | Privett* | 1,247 |

[All of Portsmouth.]

PORTSMOUTH.—For rebuilding premises, Osborne-road, Southsea, for Mr. J. Wickens, butcher. Messrs. Rake & Cogswell, architects:—

| | | | |
|---|---|---|---|
| Light & Son | £947 | Lay & Co. | £819 |
| Davis | 918 | Bishop Bros. | 800 |
| S. Salter | 880 | J. Crockerell | 798 |
| J. Croad | 850 | H. Jones | 778 |
| F. Privett | 827 | M. Colthemp* | 775 |
| F. Corke | 824 | | |

[All of Portsmouth.]

PUCKPOOL.—For erecting a stone wall, for St. Helens Urban District Council. Mr. C. Pursey, Surveyor, St. Helens:—

| | |
|---|---|
| F. Holland | £203 0 0 |
| Adams & Mitchell, Ryde* | 174 10 0 |
| R. Couldrey‡ | 99 18 0 |

‡ Withdrawn.

SHIREMOOR.—For making good streets, for Earsdon Urban District Council. Mr. J. R. MacMillan, Surveyor, Council Offices, Shiremoor:—

| | | | |
|---|---|---|---|
| McLaren & Co. | £1,102 6 9 | W. Robson | £910 13 3 |
| G. Thornton & Co. | 999 0 0 | J. Coxon | 891 5 9 |
| J. Shannon & Co. | 995 2 1 | M. D. Young, Hexham and Newcastle* | 844 16 5 |
| J. W. Henderson | 916 19 9 | | |

Estimate by Surveyor, £1,006.

SUTTON (Surrey).—For the erection of a house in the Worcester-road, for Mr. Gerald Pilditch. Messrs. Frank Chown & Sheffield, architects, 2, Princes-street, Hanover-square, W. Quantities by Messrs. Andrews & Read, 13, Basinghall-street, E.C.:—

| | | | |
|---|---|---|---|
| Gathercole Bros. | £1,960 | Cropley Bros., Ltd. | £1,887 |
| G. Parker & Son | 1,937 | B. E. Nightingale, London* | 1,755 |
| E. J. Saunders | 1,924 | | |
| J. Smith & Sons | 1,897 | | |

TERRINGTON ST. CLEMENT.—For erecting cottage, for Mr. W. Tuck. Messrs. Walker & Walker, architects, 2, Lower Hill-street, Wisbech:—

| | | | |
|---|---|---|---|
| H. W. Reeder | £219 5 9 | W. White | £168 0 0 |
| Tash & Langley | 216 0 0 | G. Hornigold | 161 10 11 |
| H. Rilett | 214 0 0 | P. Bone | 161 0 0 |
| Wilkinson & Son | 200 0 0 | Tann & Johnson | 160 0 0 |
| H. G. Papworth | 189 5 0 | Barnes & Co. | 146 0 0 |
| Johnson & Son | 180 10 0 | R. Eggleton, Terrington St. Clement, Lynn* | 136 0 0 |
| J. Parker | 176 17 6 | | |
| C. E. Green | 171 8 6 | | |
| H. Lawson | 169 15 0 | | |

THRYBERGH.—For working men's club, Thrybergh, near Rotherham, for the Trustees. Mr. P. A. Hinchliffe, A.R.I.B.A., architect and surveyor, 14, Regent-street, Barnsley:—

| | | | |
|---|---|---|---|
| Chadwick & Co. | £2,750 | J. R. Newton | £2,154 |
| J. Cooper | 2,643 | W. M. Beeden, Thrybergh, Rotherham* | 2,054 |
| W. Thornton & Son | 2,631 | | |
| R. Snell | 2,492 | | |
| W. H. Trehern | 2,420 | | |

TREFOREST.—For private street works, New Park-terrace, for the Pontypridd Urban District Council. Mr. P. R. A. Willoughby, Engineer and Surveyor, Pontypridd:—
G. L. Morgan, Pontypridd* ..... £391 18 4

TWICKENHAM.—For private street improvement works, Norcutt-road and Warwick-road, for the Urban District Council. Mr. F. W. Pearce, Surveyor, Town Hall, Twickenham:—
W. E. Rhodes, South Ealing* .... £474 13 7 / £399 6 7


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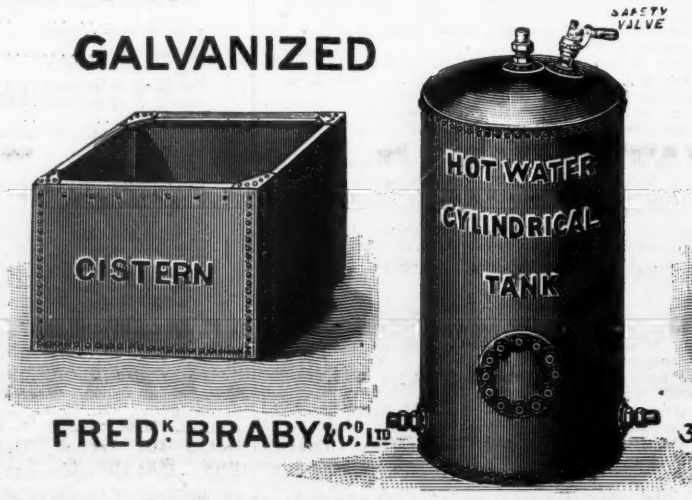


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# REVIEWS OF BOOKS:

## *Monthly Supplement to "The Builder."*

### Books.

*Herculaneum: Past, Present, and Future.* By CHARLES WALDSTEIN, Litt.D., etc., and LEONARD SHOOLBRIDGE, M.A. (London: Macmillan & Co. 1908.)

THIS fine volume is published with a double object; first, to impress the desirability if not the moral necessity of a complete excavation of Herculaneum, while giving information which may be of permanent value to the archæologist; secondly, to urge that the practice and art of excavation itself requires complete reform. This latter object is set forth in a rather unusual manner by a description of a complete excavation as the authors conceive it:—

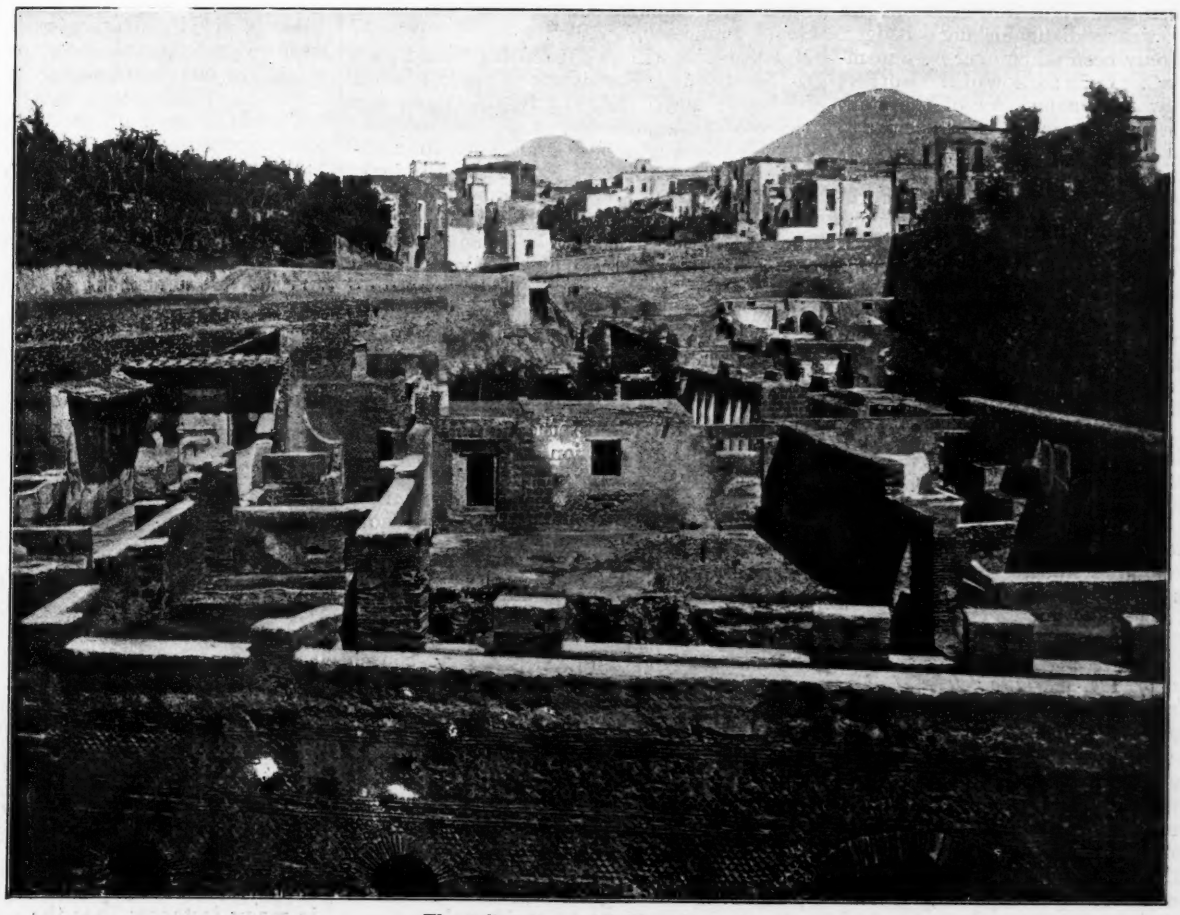
"The points on which the present methods of excavation are at fault, and the direction in which these reforms can be initiated, would receive their most striking exemplification in such an enterprise as the international excavation of Herculaneum as we conceived it. Herculaneum would thus have become the type to inaugurate a new era in the science and art of excavation. On this account also it seemed important that our convictions should thus be expressed and amplified."

As everyone knows, the project as an international one, first proposed by Professor Waldstein, has been abandoned, and the Italian Government have taken upon themselves a task which it is to be feared will not be carried out, if at all, either so thoroughly or so soon as it might have been had Professor Waldstein's proposals been adopted. Into the history of the protracted negotiations and *pourparlers* which took place on the subject, and which are fully set out in Appendix I., under the title, "Documents Relating to the International Scheme of Investigation," we have not space to go here; it was quite right that they should be placed on record in a permanent form. It is sufficient to say here that there seems to have been a great deal of shilly-shallying and contradictory attitudes on the part of the Italian Government; that Professor Waldstein proposed a splendid scheme of joint action of various Governments by which a great work might have been accomplished; that he acted throughout in an entirely public-spirited manner; and that he has been rather ungraciously treated, and his motives, if not misunderstood, at all events misrepresented. As it is, as he says in his introduction:—

"The useful work which, we hope, may at once be done at Herculaneum by the Italian Government can only be tentative and preliminary; but it will be of the highest importance if thereby it can be determined at what definite point and by what methods the great work of a complete and final excavation can be undertaken. We sincerely wish all success to our Italian *confrères*."

It is not probably generally realised what remarkable and valuable works of art have already been found on the site of Herculaneum, even from the small portion already spasmodically explored at different periods. The numerous illustrations in the book will be a revelation to many readers on this head. Not only is the quantity considerable, but the quality of the work is very high—much higher than anything that has come out of Pompeii. Some of the bronze figures discovered have almost the character of Greek art of the best period; some, both of these and of the marble works, have become familiarised to us in museums and from illustrations; their collective illustration in this book is the strongest argument that could possibly be used for the complete excavation of the site. Who knows what might not be found, since these fine works are the result of but piecemeal and tentative excavations? The town was a small one, but from the character of the work already found, from indications in the buildings and streets, and from references to the place by contemporary writers, it seems reasonable to conclude that it was a place of superior social and architectural character to Pompeii.

Of the public buildings already discovered, there is a small but richly decorated theatre covered with marble veneer, and decorated with many statues, some of which are in the Naples Museum, and three at Dresden; some unfortunately are believed to be irretrievably lost. There is a building, a parallelogram in plan, about the object of which there has been much difference of opinion. It has been called a basilica, and had an internal colonnade, but no apse. On the end wall were three paintings—Theseus and the Minotaur, Chiron and Achilles, and the Childhood of Telephus—cut out and preserved in the Naples Museum. The subjects do not seem suitable to a basilica. The suggestion of a palæstra seems more probable. There are vague records of three or five temples discovered and now covered up again. During last century some excavations, distinguished at the "scavi nuovi," were made, which are still uncovered, and of which the general aspect may be gathered from the reduced reproduction given here of the plate in the book. There are parts of streets of houses, almost all of two stories high, which upper stories, however, have been allowed to collapse; another argument in favour of Professor Waldstein's wish that excavations should be more systematically carried out



*The "Scavi nuovi," Herculaneum.*

and under better supervision. Three of these houses had porticos fronting the street; one of these can be seen in the view.

The layers under which the city lies buried are not of lava, but of the tremendous eruption of dust and ashes described in Pliny's well-known narrative; some lava streams of a comparatively modern period having covered this only to a limited extent. The point is important, as excavation must be easier and less costly than cutting through layers of lava.

We now come to the chapters which, in telling an imaginary story of the progress of the excavation on a large scale, represent the opinion of the authors as to the manner in which such work should be carried out. It is an original way of doing it, but it might have been better to have distinguished this imaginary history by a different type. We can quite fancy a careless or inattentive reader taking it all for a description of what has actually happened.

The first matter suggested is the organisation of the staff, dividing the junior archæologists who were willing to assist into two classes—"Associates" and "Probationers," the latter not to be considered part of the staff, but to be under the immediate direction of the members of the staff of their own nationality. The whole of the suggestions for organisation have reference to the case of an International Staff representing the different countries taking part in the work. The proposed arrangements seem excellent.

Then we come to practical methods of working. The employment of steel standards (the authors say "iron pillars," which is rather an out-of-date phrase) and girders is recommended as a means of supporting the surface and preserving the excavated remains from injury or from otherwise unavoidable mutilation. Suggestions are then made in regard to the best line on which the excavation should proceed. We read of the employment of small trucks on tramways for conveying the excavated earth to a central depot to be sifted. From the shed where the chief of the staff presides telephone wires run to all parts of the workings. All persons not connected with the operations are excluded by fencing. Members, Associates and Probationers, on the staff, wear distinguishing badges. Visitors can only been taken over by a member of the staff. Each section of the workers is presided over by a member of the staff, archæologist or engineer or other specialist, but each section must have at least an archæologist and engineer in charge who are full members. Prizes were offered to workmen for any object discovered on the spot; but if it was brought in broken or damaged no prize was awarded, whatever the value of the article.

There follows a most interesting chapter on the proceedings, "After Excavation"; the restoring atelier; the treatment of bronze articles by specialist chemists; the system of day-books for recording and comparing work in each section.

The whole imaginary account is interesting reading, and as practical in its suggestions as it is interesting. We can only regret that the excavations are not being really entered upon and carried through in the manner here described. But Professor Waldstein's suggestions may have a permanent value nevertheless.

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*The Shores of the Adriatic: The Italian Side. An Architectural and Archæological Pilgrimage.* By F. Hamilton Jackson, R.B.A. (London: John Murray. 1906.)

This is one of two goodly twin volumes, dealing with the history, archæology, and architecture of the country bordering on each side of the Adriatic. The companion volume, which treats of the Austrian side, has only been recently completed, and will be referred to in our next supplement. Both volumes are so interesting and so full of information and illustrations, that each is worth a separate notice.

Mr. Jackson's is something more than an architectural book; he has been through the country with an observant eye for everything—the landscape, the people and their habits and character, and the buildings and works of art, and moreover has imported a great deal of history into his book. But the architecture is the leading subject, and is illustrated by a number of beautiful line drawings by the author, with whose style and acquirements in this respect our readers have had some acquaintance already; for some portions have appeared in their original form in our columns, accompanied in each case by some of the author's beautiful sketches, having been published here sometimes as leading articles, sometimes under the author's initials. These have been rewritten to some extent for their permanent place in the book; in fact some of the information as to places and people, interesting as it is, would have been out of place in our columns, where we were necessarily bound to confine the articles mainly to architectural subjects.

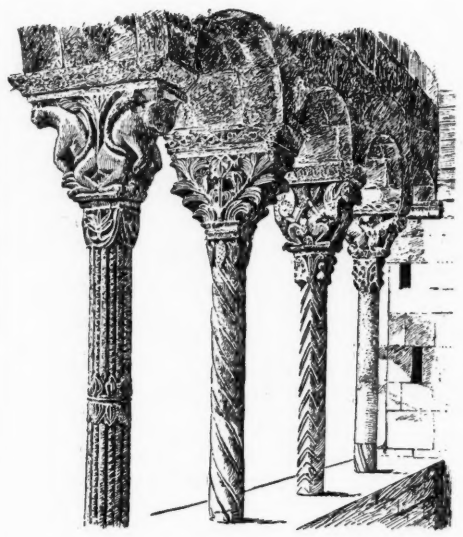
The book takes us through places which are not much known, architecturally or otherwise, to the majority of English readers; Bitonto, Barletta Lucera, Siponto, etc., are not familiar names in architectural travel; but the list of places illustrated includes the more familiar names of Rimini and Ravenna. But Rimini, after all, is more familiar through poetry and history than through its architecture. The author briefly traces its ancient history from the time when it was Ariminum, and during the mediæval and early Renaissance period, when it was a place over which much fighting and diplomatic conjuring took place, the city going from one master to another—for a century and a half a property of the Malatestas; sold to Cæsar Borgia in 1500; reclaimed after his death by the Malatesta of the day, and then ceded by him in 1503 to Venice, which had to give it up again in 1509, when it became, and remained for nearly two centuries, an appanage of Ravenna, twenty-seven miles off. A place with a strange mixture of historic and architectural memories, with its bridge built by Augustus Cæsar; its church of San Francesco, called the "Tempio Malatesta," attributed to Alberti and said to be the first Renaissance façade erected in Italy; and its Piazza Giulio Cesare (on the site of the ancient forum), with a pillar erected by Sigismond Malatesta to commemorate Cæsar's crossing of the Rubicon, six miles away.

Of the greater city of Ravenna—greater in architectural history—the author gives a historic summary which may serve to make it clearer to many architects who are familiar with the unique tomb of Theodoric, exactly who and what Theodoric was. The author has not thought it necessary to add much to the numerous illustrations of San Vitale, but gives us a good many interesting facts as to the details; but he gives a good illustration of the interior of the tomb of Galla Placidia. A beautiful sketch of "The Pineta Ravenna" reminds one that the place is hallowed by still more modern associations, connected with the names and partly with the verse of two great XIXth-century poets:—

> "We wandered to the pine forest
> That skirts the ocean's foam."

Pomposa and its XIth-century church are the subjects of an interesting chapter. The interior is a basilica of Byzantine character of detail; the exterior a barn-like building with a narthex, with a high-pitched roof and an entry of triple arches, standing across the end of the church; and a great campanile of the plainest description, divided into nine nearly equal stories, each of them (except the top one) pierced with a single round-headed window placed in the most accidental manner without the slightest regard to centres; the top story has a triple window, and a conical roof surmounts the whole.

The illustrations are of endless interest, taking us to all kinds of out-of-the-way and little-illustrated architectural incidents; the bridge over the Natisone at Cividale, for instance, with its high round arches so narrow transversely that they seem hardly safe; the barbaric-looking circular window at S. Maria, Pomposa, with its odd creatures in the pierced work in the centre; the Romanesque doorway at S. Leonardo, with its two round arches with different centres, and the uncouth griffins perched on the corbels; the curious group of the old cathedral at Molfetta; these and others remind us continually that we are passing through a land of architectural transition and of the meeting, in a confused kind of way, of many different architectural influences, giving rise to forms and combinations which can hardly be catalogued under any of the usual architectural classifications. One of the strangest of all, perhaps, is the gallery at S. Valentino at



*Gallery, S. Valentino, Bitonto.*

Bitonto, with its columns standing like sticks, with no pretence of a base, on the sill, and spreading out into capitals of portentous size and grotesqueness above.

This is a book of permanent value, full of information, and at the same time thoroughly interesting reading. We should not be surprised if it led to some architectural pilgrimages in a new direction.

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*The Domestic Architecture of England during the Tudor Period.* By the late Thomas Garner, architect, and Arthur Stratton, architect. Part II. (London: B. T. Batsford. 1908.)

This is the second instalment of the large and fine illustrative work on the domestic architecture of the Tudor period, to be completed in three parts; the third part is now in preparation, and will be issued during the present year.

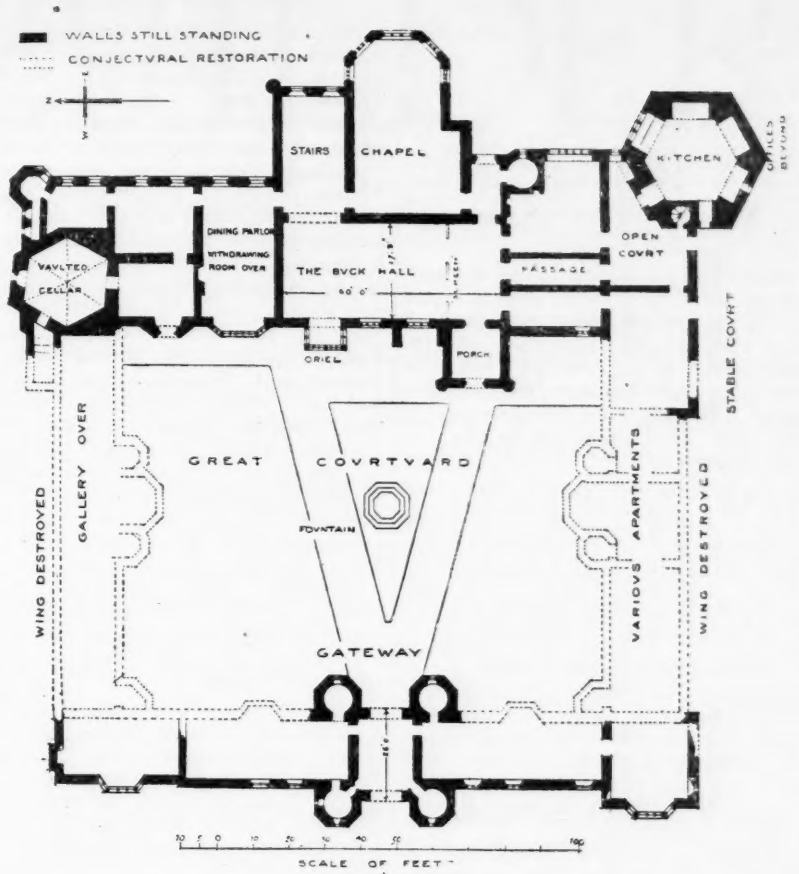
There were many palatial residences erected in England during the Tudor period, but the present publication, or at least this portion of it, is a good deal occupied with the classes of building which were not so much palaces as homes; many of them indeed tolerably large, but mostly such as may be called dwelling-houses rather than mansions, suggesting comfort and picturesqueness rather than grandeur, and having this special interest, that they represent a form of architecture that is peculiarly English; nothing quite like it is to be found in any other country. It has a character of unpretentious picturesqueness arising naturally out of the circumstances of the plan. And the plan itself, in many instances, has the same character of unpretentious naïvété. It is very seldom

symmetrical; rooms or blocks of rooms seem to be joined together at any angle that comes convenient; and even where there is an outward symmetry between two wings of a house, they are generally cut up inside in the most accidental kind of fashion. It cannot be said that these plans are good as plans; they are not generally convenient or well arranged, from the modern point of view; but they are interesting, and give rise to interesting buildings.

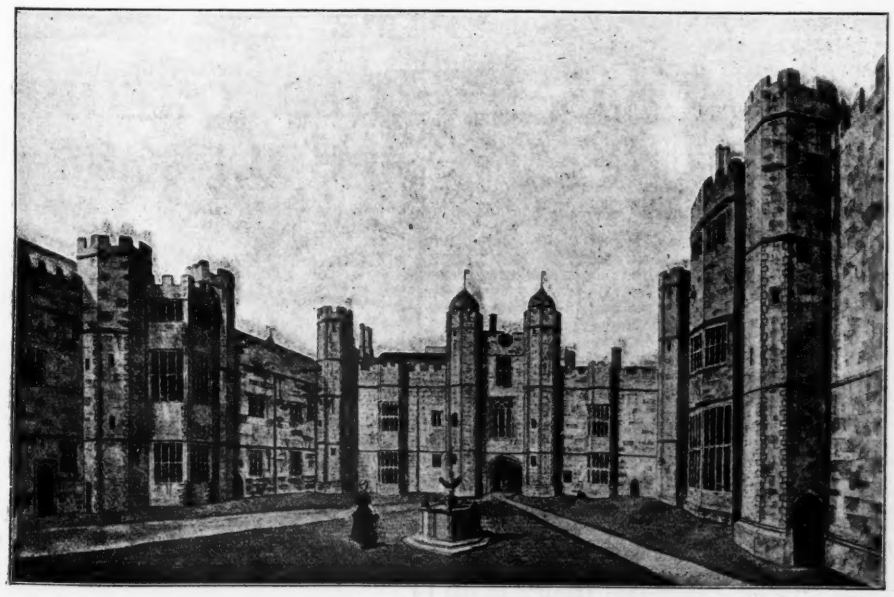
Among the buildings illustrated is Cowdray, now mainly in ruins, in regard to which there has been a good deal of comment lately as to a supposed proposal to remove the existing remains to make room for a modern house; a report which we were glad to learn was not correct. The authors have given a measured elevation of the part of the house with the large oriel windows, of which we published a sketch some little time back; but they have also fortunately been able to avail themselves of some old drawings by S. H. Grimm showing the house before it was dismantled; we give a reproduction of one of these, to a reduced scale, showing the interior court as it once existed. We give also a reduced copy of the plan, as it is very typical of that curious superficial symmetry of arrangement to which reference has been made, which occurs so often in the house plans of this period. Another curious point about it is the fancy for the unusual form of a hexagon plan, seen in the two turrets which form the kitchen and the cellar on the ground floor.

A good deal of the expression and effect of these Tudor houses lies very often in the placing of one large window which is the dominating feature of the scene, as is apparent in the first example in the plates in this part, the courtyard of Compton Wynyates, in which the whole architectural effect is dependent on the large bay window in the angle; in the Old Hall, Gainsborough, we have a similar effect from the large mullioned windows of the great hall abutting against the chimney-stack which separates them; in the large bay window at Hengrave; and in the two windows which rise nearly from the ground to the eaves at Chavenage Manor-house, contrasting so picturesquely with the blank wall on the other side of the entrance bay.

Haddon Hall comes among the illustrations—more interesting for the interior than the exterior; its excellent preservation and picturesque site have given Haddon a little more reputation than it seems quite entitled to; but the interiors are fascinating, though the exterior is somewhat heavy. Great Cressingham, with its curiously panelled walls, illustrates one fancy of Tudor building, of which perhaps more might be made.




*Plan of Cowdray.*



*The Courtyard of Cowdray. From a Drawing by S. H. Grimm.*

The half-timber buildings—Moreton, The Ley (Weobley), and others, it is well to have records of; they are most pleasing to look at; but it is to be hoped the illustrations will not tempt anyone to imitate them; half-timber buildings in England at the present day are an anachronism.

Indeed, the real use to architects of such a collection of plates as these is to induce a state of mind; not to provide examples to copy from. There is the important point, of course, of possessing illustrations as records of buildings which may become dilapidated or be restored; beyond that, the value of the collection consists really in this—that in turning it over one acquires (or so it is to be hoped) a sympathy for the kind of qualities which are shown in these domestic buildings—for their quiet character and absence of display; a feeling which may influence designs which nevertheless are not imitated from any of the old buildings illustrated.

The plates and the style of letterpress are excellent, and the three parts, when completed, will make a very fine architectural publication.

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*Spons' Architects' and Builders' Pocket Price Book.* Edited by CLYDE YOUNG, A.R.I.B.A. (London: E. & F. N. Spon. 1909.)

THIS is not merely a price-book, but a small book which can really be carried in the pocket without inconvenience, and containing a great deal of valuable practical information, to which a very full schedule of materials and labour is added. It is therefore a somewhat different class of publication to the well-known larger price books (Laxton's and Lockwood's), and has a value of its own as a pocket-book for reference. There is a useful schedule of the approximate cost of different classes of buildings, including (what is especially useful) the actual worked-out cost per cubic foot of some large and important buildings recently carried out. These lists may be recommended to the attention of young architects sending in competition designs for public buildings, in which the most erroneous ideas as to the possible limit of cost are often put down in the architect's estimate. The principal headings of subjects are arranged in alphabetical order, and there is a full index added.

## MAGAZINES AND REVIEWS.

THE *Quarterly Review* contains an important article by Professor Bosanquet on "Greek Temples and Early Religion." He suggests that the temples may be considered under two groups, those which stood within or near the city walls, and those in the open country; the contrast being somewhat similar to that between the Christian cathedrals standing in old centres of Roman administration, and the monastic churches placed amid scenes of natural beauty in the open country. The article furnishes a good summary of the present state of knowledge in regard especially to the earlier temples which preceded the more generally famous erections of the great Greek period. The older shrines had little of the refinement and severe

character of design which we now associate with Greek architecture :—

"There was the same contrast between old and new on the acropolis of Athens and at Delphi. The older shrines were small in their dimensions, audacious in their colouring, decorated with all manner of monstrous and vehemently moving forms. If we could set foot in one of the crowded sanctuaries of pre-Persian Greece, with its riot of bright colour and uncouth shapes, we should suppose ourselves to be in some holy city of India rather than in the Greece which most of us know best by its later, serene, better disciplined creations."

The same issue contains a trenchant and effective article on the illusive idea of "The Right to Work," which ought to be studied by those who imagine that work can be artificially created to any good purpose. The mere history of Emile Thomas's preposterous experiment in France under the Government of 1848, and its disastrous results, is significant enough :—

"What the socialists really mean when they say that a man has a right to work is that he has a right to claim wages at the expense of people who do not want his work. . . . In order to get wages a man must offer work which somebody wants, and must take the trouble to discover that somebody. If he fails to do this he is not justified in asking Parliament to force other people to pay him a wage for doing something which they do not want done."

Then in another passage there is a delightful *reductio ad absurdum* of the Trade-union theory that it is to the benefit of the working classes that each man should do as little as possible for his money :—

"Next in importance, if not even of greater importance, is the question of the output of work by the individual workman. No one familiar with the facts will deny that the wealth production of this country is very seriously diminished by the prevalence of the absurd theory that a man who works hard is keeping another man out of a job. If this were true, then it would follow that the best way in which a workman could help his comrades would be by doing no work at all, which leads to the absurdity that constant employment will be secured for everybody when nobody does any work. The fallacy, of course, arises from forgetfulness of the fact that the wealth produced by the work of one man constitutes the wages of another, and that the real employers of the working classes are, in the main, the working classes themselves. The more wealth each workman produces the greater is the sum available for the wages of other workmen. Unfortunately the absurd theory above referred to is not only widely held, but widely acted upon. Many workmen, when paid by time, deliberately make a rule of doing, not the maximum which their strength and health would reasonably permit, but the minimum which will pass muster with the foreman. The amount of labour power thus annually wasted and lost for ever is incalculable. This important question may be commended to the consideration of Trade-union leaders.

This article should be read in connexion with the one on "The Eight Hours' Day in Coal Mines." The writer of the last-named article admits that there is something to be said in favour of this, in respect of the peculiarly harassing nature of the work, but he draws attention to one typical result of the recent increased price of English coal in consequence of higher wages and lesser production. The Pacific Steam Navigation Company, since Welsh coal advanced in price, has ceased to export it to South America for the use of its steamers, and not only has coaled for the home voyage with coal from Chili or West Virginia, but Transatlantic steamers not unfrequently take coal enough there to carry them to England and back again, "doing the whole run both ways on American coal." Such is the result of asking too much for our own goods and our own labour. We have only space to refer to another article by Mr. Sturge Moore on "William Blake"—a very good summary of the genius, without overlooking the weaknesses, of that strangely-inspired artist.

To the *Art Journal* Mr. E. C. Clifford contributes an article on Selborne, rendered more valuable by the author's beautiful sketches. Mr. Luther Hooper gives a sketch of the past history of "Silk Weaving in Spitalfields," which became a great industry towards the close of the XVIIth century, largely owing to the immigration of the French Huguenots, bringing with them their goods and the practice of their handicrafts. The Spitalfields weaving trade had a prosperous time for about a century. The number contains a fine plate of Millais's "Sir Isumbras."

The *Architectural Record* (New York) contains a thoughtful article by Mr. T. W. Pietsch on "The Superiority of the French-Trained Architect" ("other things being equal," the author adds in a footnote). We agree with the writer in his estimate of the "dominant constructive sense" of the French school of architecture. The other side of the matter is that the "school" tends to run through everything, and to produce a dignified monotony. The special point of the article is that American architects follow the French school because it is (in their thinking) the best architecture, and is as suitable to American climate and circumstances as to French. There is something in that. Before attacking Viollet-le-Duc the author should have got the spelling of his name right. The same issue contains an article on "Concrete Construction" as illustrated in Roman remains.

Conversely, the *Architektonische Rundschau* publishes an article on the modern use of concrete in garden architecture and decoration—"Der Zementbeton in Garten und Landschaft"; the advantage of which, however, seems only economical. The illustrations of the number present nothing for special comment.

The *Berliner Architekturwelt* contains an article by Herr Paulsdorff on some modern classic churches in Berlin, with small illustrations; the Sophienkirche looks curiously like a London church by Wren. A considerable number of the plates are occupied with Herr Straumer's Evangelican-Lutheran church at Berlin, with a twin-spired front showing through a row of houses and shops on each side; the traceried windows exhibit what Fergusson called "the horrors of German interpenetration." There is some interesting detail in the interiors. The best illustrations in the number are those of the two equestrian groups of "Day" and "Night," by Herr Hosäus, which were the prize designs for the decoration of the Pappelplatz at Berlin. The competition seems to have called forth some other fine designs.

*Moderne Bauformen* is full of clever and interesting work in house and interiors, less open to the charge of eccentricity than is sometimes the case; some of the detail and the interiors in some dwelling-houses by MM. Billing and Vittali, of Kalsruhe, are especially interesting. The publication *Innen - Dekoration*, dealing mainly with interiors, also contains a great many interesting illustrations of the treatment of rooms and furniture.

The *National Review* contains an article by Miss Helen Zimmern on the fruitful subject of "Modern Antiques"—fabricated imitations of ancient pictures, statues, manuscripts, and book-bindings, which should be read by unfledged collectors who have more money than knowledge of art at their command. The author asks if they have ever reflected on the significant fact that in Florence shops with the inscription "Works of Art and Antiques," full of pictures, sculptures, and armour professing to date from the great period of Italian art, do a large trade, and yet that their stock never seems to diminish! A great many of the tricks of the trade of manufacturing "antiques" are described, and the article concludes :—

"Renaissance statues in alabaster are turned out by the dozen made in moulds in which has been cast alabaster powder thickened with gum, afterwards patinated and polished with emery paper. Renaissance portraits in wax, now so much the mode, are fabricated in Paris with grace and ease. When sold under glass it is hard to tell the false from the real. As for marble statues, busts, fountains, and what not besides, there exist in Italy large factories of such pasticci, some of which are buried to give them colour and a dirt coating, all are slightly broken and chipped, while others are passed over with a special chemical preparation, of which every coating represents a century of age. This art has been brought to such perfection that the test of a broken surface no longer applies, for the wash so penetrates the porous marble that it becomes discoloured to the core. Of such marbles whole shiploads wander annually to the United States."

*Harper* contains, under the title "The Terminal," a good illustrated account of the working of an immense railway terminus in the United States (the particular city is not given), where things have to be done on apparently a larger scale than in any similar establishment in this country.

In *Scribner* Mr. C. Brinton writes an article on "German Painting of To-Day." We suspect that the works illustrated look better in black and white than in their original colour; but Böcklin's "Island of the Dead" is a fine piece of poetic conception, in idea at all events, whatever it may be in colour.

The *Revue Générale* (Brussels) contains a very complete summary of the development and present position of aërial navigation, written in a scientific spirit. M. H. Primbault is the author. Those who wish to know the main facts on a subject which may become of practical interest to everyone will find this article worth reading.

The *Journal* of the National Association of Master Heating and Domestic Engineers is a small quarterly publication. The January number contains short articles on matters affecting the trades represented by the Association, the most important being one on the Regulation of Water Fittings, another adverse to the Plumbers' Registration Bill, and a third in favour of the Standardisation of Heating Pipes in accordance with the reports of the Engineering Standards Committee. The *Journal* contains also a few "Current Notes," and some short notices of new books.

The *Antiquary* contains an article by Mr. Harris Stone on some of the antiquities in the neighbourhood of Land's End, especially on the old Celtic cross which stands, in strange contrast with the modern mile-stone, at the cross roads three miles from St. Just; also on some of the "bee-hive" huts in the district; and Mr. Andrew Oliver contributes an article on "Monumental Brasses in the City of London."

The *Church Builder* (quarterly) contains an illustrated article on the fine Devonshire church of S. Mary-the-Virgin, Ile Abbots, within ten miles of Taunton. It appears to have a very good late tower, as well as a fine nave arcade, and is reported to be much less spoiled by interference or restoration than is usual.

"Models and Model-making," in the *Pall Mall Magazine*, is a well-written article by Mr. H. Greenly on the interest and practical utility of engineering models.

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